

Table S2. Histidine kinases and response regulators encoded in complete genomes of [Archaea](#)

| | |
|--|-----------------------|
| <u>Archaea</u> | |
| <u>Candidatus Micrarchaeota</u> | |
| . Candidatus Micrarchaeota archaeon Mial4 | <u>1 HK, 1 RR</u> |
| <u>Candidatus Nanohaloarchaeota</u> | |
| . Nanohaloarchaea archaeon SG9 | 0 hits |
| <u>Candidatus Korarchaeota</u> | |
| . Candidatus Korarchaeum cryptofilum OPF8 | 0 hits |
| <u>Crenarchaeota</u> | |
| 44 completely sequenced genomes | 0 hits |
| <u>Euryarchaeota</u> | |
| . Aciduliprofundum boonei T469 | <u>2 HKs, 4 RRs</u> |
| . Aciduliprofundum sp. MAR08-339i | <u>2 HKs, 4 RRs</u> |
| <u>Archaeoglobi</u> | |
| . Archaeoglobus fulgidus DSM 4304 | <u>13 HKs, 12 RRs</u> |
| . Archaeoglobus profundus DSM 5631 | <u>3 HKs, 7 RRs</u> |
| . Archaeoglobus sulfaticallidus PM70-1i | <u>4 HKs, 5 RRs</u> |
| . Archaeoglobus veneficus SNP6i | <u>4 HKs, 3 RRs</u> |
| . Ferroglobus placidus DSM 10642 | <u>4 HKs, 4 RRs</u> |
| . Geoglobus acetivorans | <u>5 HKs, 8 RRs</u> |
| . Geoglobus ahangari | <u>4 HKs, 3 RRs</u> |
| <u>Halobacteria</u> | |
| . Halalkalicoccus jeotgali B3 | <u>6 HKs, 14 RRs</u> |
| . Halanaeroarchaeum sulfurireducens | <u>27 HKs, 8 RRs</u> |
| . Haloarcula hispanica ATCC 33960 | <u>26 HKs, 35 RRs</u> |
| . Haloarcula marismortui ATCC 43049 | <u>37 HKs, 45 RRs</u> |
| . Haloarcula sp. CBA1115 | <u>26 HKs, 36 RRs</u> |
| . Halobacterium hubeiense | <u>18 HKs, 19 RRs</u> |
| . Halobacterium salinarum NRC-1 | <u>11 HKs, 9 RRs</u> |
| . Halobacterium sp. DL1 | <u>18 HKs, 17 RRs</u> |
| . Halobiforma lacisalsi AJ5 | <u>25 HKs, 22 RRs</u> |
| . Halodesulfurarchaeum formicicum | <u>15 HKs, 6 RRs</u> |
| . Haloferax gibbonsii ARA6 | <u>27 HKs, 22 RRs</u> |
| . Haloferax mediterranei ATCC 33500 | <u>22 HKs, 14 RRs</u> |
| . Haloferax volcanii DS2 | <u>15 HKs, 22 RRs</u> |
| . Halogeometricum borinquense DSM 11551 | <u>21 HKs, 25 RRs</u> |
| . Halomicrobium mukohataei DSM 12286 | <u>21 HKs, 24 RRs</u> |
| . Halopiger xanaduensis SH-6 | <u>26 HKs, 18 RRs</u> |
| . Haloquadratum walsbyi DSM 16790 | <u>4 HKs, 5 RRs</u> |
| . Halorhabdus tiamatea SARL4B | <u>18 HKs, 17 RRs</u> |
| . Halorhabdus utahensis DSM 12940 | <u>31 HKs, 29 RRs</u> |
| . Halorientalis sp. IM1011 | <u>40 HKs, 29 RRs</u> |
| . Halorubrum lacusprofundi ATCC 49239 | <u>32 HKs, 9 RRs</u> |
| . Halostagnicola larsenii XH-48 | <u>11 HKs, 15 RRs</u> |
| . Haloterrigena daqingensis | <u>15 HKs, 16 RRs</u> |
| . Haloterrigena turkmenica DSM 5511 | <u>46 HKs, 30 RRs</u> |
| . Halovivax ruber XH-70 | <u>17 HKs, 10 RRs</u> |
| . Natrialba magadii ATCC 43099 | <u>16 HKs, 23 RRs</u> |
| . Natrialbaceae archaeon JW/NM-HA 15 | <u>29 HKs, 22 RRs</u> |
| . Natrinema pellirubrum DSM 15624 | <u>22 HKs, 18 RRs</u> |
| . Natrinema sp. J7-2 | <u>10 HKs, 15 RRs</u> |
| . Natronobacterium gregoryi SP2 | <u>6 HKs, 15 RRs</u> |
| . Natronococcus occultus SP4 | <u>23 HKs, 25 RRs</u> |
| . Natronomonas moolapensis 8.8.11 | <u>24 HKs, 26 RRs</u> |
| . Natronomonas pharaonis DSM 2160 | <u>24 HKs, 22 RRs</u> |
| . Salinararchaeum sp. Harcht-Bsk1 | <u>23 HKs, 16 RRs</u> |
| . halophilic archaeon DL31 | <u>13 HKs, 6 RRs</u> |
| <u>Methanobacteria</u> | |
| . Methanobacterium congolense | <u>10 HKs, 9 RRs</u> |
| . Methanobacterium formicicum BRM9 | <u>23 HKs, 35 RRs</u> |
| . Methanobacterium lacus AL-21 | <u>29 HKs, 33 RRs</u> |
| . Methanobacterium paludis SWAN1 | <u>10 HKs, 7 RRs</u> |
| . Methanobacterium sp. MBl | <u>14 HKs, 18 RRs</u> |
| . Methanobrevibacter millerae | <u>3 HKs, 2 RRs</u> |
| . Methanobrevibacter olleyae | 0 hits |
| . Methanobrevibacter ruminantium M1 | 0 hits |
| . Methanobrevibacter smithii ATCC 35061 | 0 hits |
| . Methanobrevibacter sp. AbM4 | <u>1 HK, 4 RRs</u> |
| . Methanobrevibacter sp. YE315 | 0 hits |
| . Methanosphaera stadtmanae DSM 3091 | 0 hits |
| . Methanothermobacter marburgensis str. Marburg | <u>11 HKs, 11 RRs</u> |
| . Methanothermobacter thermoautotrophicus str. Delta H ... | <u>12 HKs, 8 RRs</u> |
| . Methanothermobacter wolfeii | <u>13 HKs, 10 RRs</u> |
| . Methanothermobacter sp. CaT2 | <u>14 HKs, 10 RRs</u> |
| . Methanothermus fervidus DSM 2088 | 0 hits |
| <u>Methanococci</u> | |
| . Methanocaldococcus bathoardescens | <u>1 HK, 2 RRs</u> |

| | |
|--|----------------|
| · Methanocaldococcus fervens AG86 | 2 HKs, 3 RRs |
| · Methanocaldococcus infernus ME | 1 HK, 2 RRs |
| · Methanocaldococcus jannaschii DSM 2661 | 0 hits |
| · Methanocaldococcus sp. FS406-22 | 1 HK, 1 RR |
| · Methanocaldococcus vulcanius M7 | 1 HK, 2 RRs |
| · Methanococcus aeolicus Nankai-3 | 1 HK, 1 RR |
| · Methanococcus maripaludis S2 | 3 HKs, 3 RRs |
| · Methanococcus vanniellii SB | 5 HKs, 3 RRs |
| · Methanococcus voltae A3 | 2 HKs, 3 RRs |
| · Methanothermococcus okinawensis | 2 HKs, 3 RRs |
| · Methanotorris igneus | 0 hits |
| <u>Methanomicrobia</u> | |
| · Methanocella arvoryzae MRE50 | 45 HKs, 14 RRs |
| · Methanocella conradii H2254 | 19 HKs, 9 RRs |
| · Methanocella paludicola SANAE | 51 HKs, 7 RRs |
| · Methanococcoides burtonii DSM 6242 | 26 HKs, 18 RRs |
| · Methanococcoides methylutens MM1 | 27 HKs, 12 RRs |
| · Methanocorpusculum labreanum Z | 1 HK, 1 RR |
| · Methanoculleus bourgensis MS2 | 14 HKs, 5 RRs |
| · Methanoculleus marisnigri JR1 | 24 HKs, 7 RRs |
| · Methanoculleus sp. MAB1 | 15 HKs, 4 RRs |
| · Methanofollis liminatans DSM 4140 | 17 HKs, 18 RRs |
| · Methanohalobium evestigatum Z-7303 | 28 HKs, 11 RRs |
| · Methanohalophilus halophilus strain Z-7982 | 26 HKs, 12 RRs |
| · Methanohalophilus mahii DSM 5219 | 22 HKs, 11 RRs |
| · Methanolacinia petrolearia DSM 11571 | 32 HKs, 19 RRs |
| · Methanolobus psychrophilus R15 | 36 HKs, 18 RRs |
| · Methanomethylovorans hollandica DSM 15978 | 11 HKs, 8 RRs |
| · Methanoplanus limicola DSM 2279 | 32 HKs, 30 RRs |
| · Methanoregula boonei 6A8 | 30 HKs, 63 RRs |
| · Methanoregula formicica | 30 HKs, 38 RRs |
| · Methanosaeta concilii GP6 | 8 HKs, 4 RRs |
| · Methanosaeta harundinacea | 2 HKs, 6 RRs |
| · Methanosaeta thermophila PT | 7 HKs, 4 RRs |
| · Methanosalsum zhilinae | 28 HKs, 9 RRs |
| · Methanosarcina acetivorans C2A | 51 HKs, 15 RRs |
| · Methanosarcina barkeri str. fusaro | 25 HKs, 11 RRs |
| · Methanosarcina horonobensis | 67 HKs, 9 RRs |
| · Methanosarcina lacustris | 18 HKs, 16 RRs |
| · Methanosarcina mazei Gol | 33 HKs, 14 RRs |
| · Methanosarcina siciliae | 43 HKs, 16 RRs |
| · Methanosarcina sp. 795 | 15 HKs, 14 RRs |
| · Methanosarcina sp. Kolksee | 21 HKs, 16 RRs |
| · Methanosarcina sp. MTP4 | 28 HKs, 16 RRs |
| · Methanosarcina sp. WH1 | 22 HKs, 15 RRs |
| · Methanosarcina sp. WWM596 | 22 HKs, 16 RRs |
| · Methanosarcina thermophila CHTI-55 | 21 HKs, 16 RRs |
| · Methanosarcina vacuolata Z-761 | 22 HKs, 14 RRs |
| · Methanosphaerula palustris EI-9c | 33 HKs, 44 RRs |
| · Methanospirillum hungatei JF-1 | 46 HKs, 87 RRs |
| <u>Methanopyri</u> | |
| · Methanopyrus kandleri AV19 | 0 hits |
| <u>Thermococci</u> | |
| · Palaeococcus pacificus DY20341 | 1 HK, 2 RRs |
| · Pyrococcus abyssi GE5 | 1 HK, 2 RRs |
| · Pyrococcus furiosus DSM 3638 | 0 hits |
| · Pyrococcus horikoshii OT3 | 1 HK, 2 RRs |
| · Pyrococcus kukulkanii | 1 HK, 2 RRs |
| · Pyrococcus sp. NA2 | 1 HK, 2 RRs |
| · Pyrococcus sp. ST04 | 1 HK, 2 RRs |
| · Pyrococcus yayanosii CH1 | 1 HK, 2 RRs |
| · Thermococcus barophilus | 1 HK, 2 RRs |
| · Thermococcus chitonophagus | 0 hits |
| · Thermococcus cleftensis | 0 hits |
| · Thermococcus eurythermalis | 1 HK, 2 RRs |
| · Thermococcus gammatolerans EJ3 | 1 HK, 1 RR |
| · Thermococcus guaymasensis DSM 11113 | 1 HK, 1 RR |
| · Thermococcus kodakarensis KOD1 | 1 HK, 2 RRs |
| · Thermococcus litoralis DSM 5473 | 1 HK, 2 RRs |
| · Thermococcus nautili | 1 HK, 2 RRs |
| · Thermococcus onnurineus NA1 | 1 HK, 2 RRs |
| · Thermococcus paralvinellae | 0 hits |
| · Thermococcus peptonophilus JCM 9653 | 1 HK, 2 RRs |
| · Thermococcus piezophilus | 0 hits |
| · Thermococcus sibiricus MM 739 | 0 hits |
| · Thermococcus sp. 2319x1 | 0 hits |
| · Thermococcus sp. 4557 | 0 hits |
| · Thermococcus sp. AM4 | 1 HK, 1 RR |
| <u>Thermoplasmata</u> | |

| | |
|--|----------------|
| . Ca. Methanomassiliicoccus intestinalis Issoire-Mx1 | 0 hits |
| . Ca. Methanomethylophilus alvus Mx1201 | 0 HKs, 1 RR |
| . Ca. Methanoplasma termitum MpT1 | 0 HKs, 1 RR |
| . Cuniculiplasma divulgatum | 0 hits |
| . Ferroplasma acidarmanus fer1 | 0 hits |
| . Ferroplasma acidiphilum | 0 hits |
| . methanogenic archaeon ISO4-H5 | 3 HKs, 1 RR |
| . Picrophilus torridus DSM 9790 | 0 hits |
| . Thermoplasma acidophilum DSM 1728 | 0 hits |
| . Thermoplasma volcanium GSS1 | 0 hits |
| . Thermoplasmatales archaeon BRNA1 | 0 HKs, 1 RR |
| <u>unclassified Euryarchaeota</u> | |
| . uncultured marine group II euryarchaeote | 0 HKs, 3 RRs |
| <u>Nanoarchaeota</u> | |
| . Ca. Nanopusillus acidilobi | 0 hits |
| . Nanoarchaeum equitans Kin4-M | 0 hits |
| <u>Thaumarchaeota</u> | |
| . Ca. Caldiarchaeum subterraneum | 0 hits |
| . Ca. Nitrocosmicus oleophilus | 22 HKs, 24 RRs |
| . Ca. Nitrosoarchaeum limnia SFB1 | 26 HKs, 33 RRs |
| . Ca. Nitrosomarinus catalina | 0 hits |
| . Ca. Nitrosopelagicus brevis | 0 hits |
| . Ca. Nitrosopumilus adriaticus | 16 HKs, 34 RRs |
| . Ca. Nitrosopumilus koreensis AR1 | 12 HKs, 15 RRs |
| . Ca. Nitrosopumilus piranensis | 2 HKs, 3 RRs |
| . Ca. Nitrosopumilus sediminis | 6 HKs, 10 RRs |
| . Ca. Nitrososphaera evergladensis SR1 | 19 HKs, 19 RRs |
| . Ca. Nitrososphaera gargensis Ga9.2 | 19 HKs, 31 RRs |
| . Ca. Nitrosotalea devanaterrea | 18 HKs, 19 RRs |
| . Ca. Nitrosotenuis cloacae strain SAT1 | 6 HKs, 15 RRs |
| . Cenarchaeum symbiosum | 0 hits |
| . Nitrosopumilus maritimus SCM1 | 11 HKs, 10 RRs |
| . Nitrososphaera viennensis EN76 | 10 HKs, 11 RRs |
| <u>Unclassified archaea</u> | |
| . archaeon GW2011 AR10 | 0 hits |
| . archaeon GW2011 AR15 | 0 hits |
| . archaeon GW2011 AR20 | 0 hits |
| . uncultured archaeon clone ASS A1 | 0 hits |

Hybrid histidine kinases, containing the REC domain at their C-termini, are counted as HKs; REC-HisK combinations with REC domains on their N-termini (with or without central PAS and/or GAF domains) are counted as RRs.

Proteins marked with * indicate inactivated or truncated REC domains, not included in the total count

Candidatus Micrarchaeota

Candidatus Micrarchaeota archaeon Mia14

HisK, no REC

Mia14_0098 [AS113441](#) GAF nad PAS sensor-containing signal trans... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

wHTH-REC

Mia14_0100 [AS113443](#) response regulator receiver [Candidatus Mi... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#) (wHTH-REC-bGlyc)

Euryarchaeota

Aciduliprofundum boonei T469

HisKin

Aboo_0120 [ADD07932](#) response regulator receiver protein [Acidul... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

Aboo_0497 [ADD08308](#) response regulator receiver protein [Acidul... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

REC only

Aboo_0851 [ADD08660](#) response regulator receiver protein [Acidul... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

Aboo_1193 [ADD09002](#) response regulator receiver protein [Acidul... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

Aboo_1536 [ADD09342](#) response regulator receiver protein [Acidul... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

Other RRs

Aboo_1082 [ADD08891](#) response regulator receiver protein [Acidul... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#) (REC-AcidOD1)

Aciduliprofundum sp. MAR08-339

HisKin

AciM339_0928 [AGB04801](#) response regulator receiver protein [Aci... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

AciM339_1357 [AGB05216](#) response regulator receiver protein [Aci... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

REC only

AciM339_0598 [AGB04482](#) response regulator with CheY-like receiv... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

AciM339_1529 [AGB05382](#) response regulator containing CheY-like ... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

AciM339_1569 [AGB05418](#) response regulator with CheY-like receiv... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

*AciM339_1015 [AGB04887](#) response regulator with CheY-like receiv... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

Other RRs

AciM339_1390 [AGB05246](#) response regulator with CheY-like receiv... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#) (REC-AcidOD1)

Archaeoglobus fulgidus DSM 4304

HisK, no REC

| | | | | | | |
|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| AF_0021 | AAB91205 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro |
| AF_0208 | AAB91025 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro |
| AF_0450 | AAB90782 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro |
| AF_0770 | AAB90464 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro |
| AF_0893 | AAB90347 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro |
| AF_1040 | AAB90200 | chemotaxis histidine kinase (cheA) [Archae... | CDD | UniProt | Pfam | InterPro |
| AF_1184 | AAB90059 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro |
| AF_1452 | AAB89797 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro |
| AF_1515 | AAB89730 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro |
| AF_1639 | AAB89602 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro |
| AF_1721 | AAB89530 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro |
| AF_2032 | AAB89224 | signal-transducing histidine kinase, putat... | CDD | UniProt | Pfam | InterPro |
| AF_2109 | AAB89139 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro |
| *AF_0881 | | (not translated, marked as frameshifted) | | | | |

HisKA, no HATPase

| | | | | | | |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| AF_0277 | AAB90955 | signal-transducing histidine kinase, putat... | CDD | UniProt | Pfam | InterPro |
| AF_0410 | AAB90824 | signal-transducing histidine kinase, putat... | CDD | UniProt | Pfam | InterPro |
| AF_0448 | AAB90784 | signal-transducing histidine kinase, putat... | CDD | UniProt | Pfam | InterPro |
| AF_1035 | AAB90205 | chemotaxis histidine kinase, putative [Arc... | CDD | UniProt | Pfam | InterPro |
| AF_1046 | AAB90196 | predicted coding region AF_1046 [Archaeogl... | CDD | UniProt | Pfam | InterPro |
| AF_1766 | AAB89485 | amino-acid ABC transporter, periplasmic bi... | CDD | UniProt | Pfam | InterPro |
| AF_2420 | AAB91242 | signal-transducing histidine kinase, putat... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|---------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| AF_0449 | AAB90783 | response regulator [Archaeoglobus fulgidus...] | CDD | UniProt | Pfam | InterPro |
| AF_1042 | AAB90207 | chemotaxis response regulator (cheY) [Arch... | CDD | UniProt | Pfam | InterPro |
| AF_1063 | AAB90176 | response regulator [Archaeoglobus fulgidus...] | CDD | UniProt | Pfam | InterPro |
| AF_1256 | AAB89986 | response regulator [Archaeoglobus fulgidus...] | CDD | UniProt | Pfam | InterPro |
| AF_1384 | AAB89861 | response regulator [Archaeoglobus fulgidus...] | CDD | UniProt | Pfam | InterPro |
| AF_1473 | AAB89775 | response regulator [Archaeoglobus fulgidus...] | CDD | UniProt | Pfam | InterPro |
| AF_1898 | AAB89351 | response regulator [Archaeoglobus fulgidus...] | CDD | UniProt | Pfam | InterPro |
| AF_2249 | AAB89010 | response regulator [Archaeoglobus fulgidus...] | CDD | UniProt | Pfam | InterPro |
| AF_2419 | AAB91243 | response regulator [Archaeoglobus fulgidus...] | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|---------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| AF_1483 | AAB89763 | signal-transducing histidine kinase [Archa.. | CDD | UniProt | Pfam | InterPro |
|---------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|

REC-CheB

| | | | | | | |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| AF_1041 | AAB90199 | protein-glutamate methylesterase [Archaeog... | CDD | UniProt | Pfam | InterPro |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

Other RRs

| | | | | | | | |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|---------------------|
| AF_1472 | AAB89776 | signal-transducing histidine kinase [Archa... | CDD | UniProt | Pfam | InterPro | (REC-PAS-GAF-HisKA) |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|---------------------|

Archaeoglobus profundus DSM 5631

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Arcpr_0538 | ADB57604 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Arcpr_0624 | ADB57689 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Arcpr_1374 | ADB58423 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Arcpr_0537 | ADB57603 | response regulator receiver protein [Archa... | CDD | UniProt | Pfam | InterPro |
| Arcpr_0540 | ADB57606 | response regulator receiver protein [Archa... | CDD | UniProt | Pfam | InterPro |
| Arcpr_0996 | ADB58057 | response regulator receiver protein [Archa... | CDD | UniProt | Pfam | InterPro |
| Arcpr_1376 | ADB58425 | response regulator receiver protein [Archa... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Arcpr_1375 | ADB58424 | response regulator receiver protein [Archa... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

Other RRs

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|-------------|
| Arcpr_0541 | ADB57607 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro | (REC-HisKA) |
| Arcpr_1453 | ADB58501 | putative PAS/PAC sensor protein [Archaeogl... | CDD | UniProt | Pfam | InterPro | (REC-HisKA) |

Archaeoglobus sulfaticallidus PM70-1

HisK, no REC

| | | | | | | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| Asulf_01122 | AGK61122 | PAS domain S-box [Archaeoglobus sulfatica... | CDD | UniProt | Pfam | InterPro |
| Asulf_01671 | AGK61644 | PAS domain S-box [Archaeoglobus sulfatica... | CDD | UniProt | Pfam | InterPro |
| Asulf_01711 | AGK61682 | PAS domain S-box [Archaeoglobus sulfatica... | CDD | UniProt | Pfam | InterPro |
| Asulf_01766 | AGK61737 | hypothetical protein Asulf_01766 [Archaeo... | CDD | UniProt | Pfam | InterPro |

HisKA, no HATPase

| | | | | | | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| Asulf_00181 | AGK60216 | PAS domain S-box [Archaeoglobus sulfatica... | CDD | UniProt | Pfam | InterPro |
| Asulf_01632 | AGK61607 | PAS domain S-box [Archaeoglobus sulfatica... | CDD | UniProt | Pfam | InterPro |
| Asulf_01672 | AGK61645 | PAS domain S-box [Archaeoglobus sulfatica... | CDD | UniProt | Pfam | InterPro |
| Asulf_01680 | AGK61652 | PAS domain S-box [Archaeoglobus sulfatica... | CDD | UniProt | Pfam | InterPro |
| Asulf_02212 | AGK62165 | PAS domain S-box [Archaeoglobus sulfatica... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|--------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| Asulf_01219 | AGK61217 | hypothetical protein Asulf_01219 [Archaeo... | CDD | UniProt | Pfam | InterPro |
| Asulf_01271 | AGK61267 | hypothetical protein Asulf_01271 [Archaeo... | CDD | UniProt | Pfam | InterPro |
| Asulf_01865 | AGK61833 | hypothetical protein Asulf_01865 [Archaeo... | CDD | UniProt | Pfam | InterPro |
| Asulf_02176 | AGK62129 | hypothetical protein Asulf_02176 [Archaeo... | CDD | UniProt | Pfam | InterPro |
| *Asulf_00749 | AGK60762 | hypothetical protein Asulf_00749 [Archaeo... | CDD | UniProt | Pfam | InterPro |

Other RRs

Asulf_00750 [AGK60763](#) PAS domain S-box [Archaeoglobus sulfatica... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#) (REC-PAS-PAS-PAS-GAF-HisKA)

Archaeoglobus veneficus SNP6

HisK, no REC

Arcve_0187 [AEA46226](#) PAS/PAC sensor signal transduction histidi... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
Arcve_0189 [AEA46228](#) PAS/PAC sensor signal transduction histidi... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
Arcve_0380 [AEA46413](#) PAS/PAC sensor signal transduction histidi... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
Arcve_1463 [AEA47466](#) CheA signal transduction histidine kinase ... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

HisKA, no HATPase

Arcve_0186 [AEA46225](#) PAS sensor protein [Archaeoglobus veneficu... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
Arcve_0534 [AEA46561](#) PAS sensor protein [Archaeoglobus veneficu... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

REC only

Arcve_0190 [AEA46229](#) response regulator receiver protein [Archa... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
Arcve_1461 [AEA47464](#) response regulator receiver protein [Archa... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

REC-CheB

Arcve_1462 [AEA47465](#) response regulator receiver modulated CheB... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

Candidatus Methanomassiliicoccus intestinalis Issoire-Mx1

Other RRs

*MMINT_05120 [AGN25892](#) PAS domain S-box [Candidatus Methanomassi... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

Candidatus Methanomethylophilus alvus Mx1201

Other RRs

MMALV_04780 [AGI85220](#) hypothetical protein MMALV_04780 [Candida... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#) (REC-xDUF835)

Candidatus Methanoplasma termitum

Other RRs

Mpt1_c03930 [AIZ56287](#) regulator of Rpos [Candidatus Methanoplas... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#) (REC-DUF835)

Ferroglobus placidus DSM 10642

HisK, no REC

Ferp_0280 [ADC64461](#) integral membrane sensor signal transducti... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
Ferp_1075 [ADC65234](#) CheA signal transduction histidine kinase ... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
Ferp_1359 [ADC65510](#) PAS/PAC sensor signal transduction histidi... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
Ferp_1726 [ADC65870](#) PAS/PAC sensor signal transduction histidi... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

HisKA, no HATPase

Ferp_1360 [ADC65511](#) putative PAS/PAC sensor protein [Ferroglob... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

REC only

Ferp_0251 [ADC64433](#) response regulator receiver protein [Ferrog... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
Ferp_1077 [ADC65236](#) response regulator receiver protein [Ferrog... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
Ferp_1725 [ADC65869](#) response regulator receiver protein [Ferrog... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

REC-CheB

Ferp_1076 [ADC65235](#) response regulator protein-glutamate methyl... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

Geoglobus acetivorans

HisK, no REC

GACE_0482 [AIY89536](#) signal-transducing histidine kinase [Geogl... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_0668 [AIY89720](#) Signal transduction histidine kinase CheA ... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_1270 [AIY90311](#) signal-transducing histidine kinase [Geogl... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_1553 [AIY90588](#) signal-transducing histidine kinase [Geogl... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_1579 [AIY90614](#) signal-transducing histidine kinase [Geogl... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

HisKA, no HATPase

GACE_0662 [AIY89714](#) hypothetical protein GACE_0662 [Geoglobus ... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_0824 [AIY89873](#) signal-transducing histidine kinase, putat... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_0973 [AIY90019](#) signal-transducing histidine kinase, putat... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_1241 [AIY90280](#) signal-transducing histidine kinase, putat... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_1965 [AIY90990](#) histidine kinase [Geoglobus acetivorans] ... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

REC only

GACE_0483 [AIY89537](#) Signal transduction response regulator [Geo... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_0624 [AIY89676](#) Signal transduction response regulator [Geo... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_0666 [AIY89718](#) Chemotaxis regulator [Geoglobus acetivorans... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_0823 [AIY89872](#) Signal transduction response regulator [Geo... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_0970 [AIY90016](#) Signal transduction response regulator [Geo... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_1067 [AIY90111](#) Chemotaxis regulator [Geoglobus acetivorans... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)
GACE_1240 [AIY90279](#) Signal transduction response regulator [Geo... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

REC-CheB

GACE_0667 [AIY89719](#) Chemotaxis response regulator protein-gluta... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

Geoglobus ahangari

HisK, no REC

GAH_00133 [AKG92508](#) Signal transduction histidine kinase [Geog... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#)

| | | | | | | |
|-------------------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| GAH_00453 | AKG92195 | Signal transduction histidine kinase [Geog... | CDD | UniProt | Pfam | InterPro |
| GAH_01483 | AKG91226 | Signal transduction histidine kinase [Geog... | CDD | UniProt | Pfam | InterPro |
| GAH_01739 | AKG90980 | PAS domain S-box [Geoglobus ahangari] ... | CDD | UniProt | Pfam | InterPro |
| HisK, no HATPase | | | | | | |
| GAH_00707 | AKG91958 | ABC-type amino acid transport [Geoglobus a... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| GAH_01741 | AKG90978 | Response regulator receiver domain [Geoglog... | CDD | UniProt | Pfam | InterPro |
| GAH_01904 | AKG90820 | Response regulator receiver domain [Geoglog... | CDD | UniProt | Pfam | InterPro |
| GAH_01962 | AKG90765 | Response regulator receiver domain [Geoglog... | CDD | UniProt | Pfam | InterPro |

Halalkalicoccus jeotgali B3

| | | | | | | |
|----------------------|--------------------------|---|-----|-------------------------|----------------------|--|
| HisK, no REC | | | | | | |
| HacjB3_01570 | ADJ13707 | sensory transduction histidine kinase [H... | CDD | UniProt | Pfam | InterPro |
| HacjB3_03485 | ADJ14088 | HTR-like protein [Halalkalicoccus jeotga... | CDD | UniProt | Pfam | InterPro |
| HacjB3_07670 | ADJ14919 | histidine kinase [Halalkalicoccus jeotga... | CDD | UniProt | Pfam | InterPro |
| HacjB3_07685 | ADJ14922 | HTR-like protein [Halalkalicoccus jeotga... | CDD | UniProt | Pfam | InterPro |
| HacjB3_09455 | ADJ15274 | signal-transducing histidine kinase-like... | CDD | UniProt | Pfam | InterPro |
| HacjB3_12375 | ADJ15856 | integral membrane sensor signal transduc... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| HacjB3_03480 | ADJ14087 | multi-sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| HacjB3_06575 | ADJ14706 | response regulator receiver protein [Hal... | CDD | UniProt | Pfam | InterPro |
| HacjB3_08175 | ADJ15018 | response regulator receiver protein [Hal... | CDD | UniProt | Pfam | InterPro |
| HacjB3_12380 | ADJ15857 | response regulator receiver protein [Hal... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| HacjB3_01630 | ADJ13719 | signal-transducing histidine kinase-like... | CDD | UniProt | Pfam | InterPro |
| HacjB3_06595 | ADJ14708 | HTR-like protein [Halalkalicoccus jeotga... | CDD | UniProt | Pfam | InterPro |
| REC-PAS | | | | | | |
| HacjB3_05800 | ADJ14551 | HTR-like protein [Halalkalicoccus jeotga... | CDD | UniProt | Pfam | InterPro |
| HacjB3_08460 | ADJ15075 | multi-sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| HacjB3_06600 | ADJ14709 | response regulator receiver protein [Hal... | CDD | UniProt | Pfam | InterPro |
| HacjB3_10100 | ADJ15403 | response regulator receiver protein [Hal... | CDD | UniProt | Pfam | InterPro |
| Hx1R-REC-HalX | | | | | | |
| HacjB3_01620 | ADJ13717 | HoxA-like transcriptional regulator [Hal... | CDD | UniProt | Pfam | InterPro (wHTH-REC-HalX) |
| Bat | | | | | | |
| HacjB3_00310 | ADJ13455 | putative PAS/PAC sensor protein [Halalka... | CDD | UniProt | Pfam | InterPro |
| HacjB3_04505 | ADJ14292 | putative PAS/PAC sensor protein [Halalka... | CDD | UniProt | Pfam | InterPro |
| HacjB3_18828 | ADJ17105 | bacterio-opsin activator-like protein (p... | CDD | UniProt | Pfam | InterPro |

Halanaeroarchaeum sulfurireducens

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|---------------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HisK, no REC | | | | | | |
| HLASF_0096 | AKH96610 | signal-transducing histidine kinase [Halan... | CDD | UniProt | Pfam | InterPro |
| HLASF_0153 | AKH96666 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| HLASF_0190 | AKH96701 | histidine kinase [Halanaeroarchaeum sulfur... | CDD | UniProt | Pfam | InterPro |
| HLASF_0252 | AKH96761 | signal-transducing histidine kinase/respon... | CDD | UniProt | Pfam | InterPro |
| HLASF_0293 | AKH96800 | PAS domain s-box [Halanaeroarchaeum sulfur... | CDD | UniProt | Pfam | InterPro |
| HLASF_0431 | AKH96937 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |
| HLASF_0463 | AKH96968 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| HLASF_0784 | AKH97279 | signal-transducing histidine kinase [Halan... | CDD | UniProt | Pfam | InterPro |
| HLASF_0844 | AKH97337 | PAS domain S-box [Halanaeroarchaeum sulfur... | CDD | UniProt | Pfam | InterPro |
| HLASF_0887 | AKH97379 | signal-transducing histidine kinase/respon... | CDD | UniProt | Pfam | InterPro |
| HLASF_0982 | AKH97472 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| HLASF_0986 | AKH97476 | signal-transducing histidine kinase [Halan... | CDD | UniProt | Pfam | InterPro |
| HLASF_1036 | AKH97525 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| HLASF_1137 | AKH97625 | PAS-PAC-PAC sensing his kinase [Halanaeroa... | CDD | UniProt | Pfam | InterPro |
| HLASF_1151 | AKH97639 | histidine kinase [Halanaeroarchaeum sulfur... | CDD | UniProt | Pfam | InterPro |
| HLASF_1363 | AKH97849 | chemotaxis protein CheA [Halanaeroarchaeum... | CDD | UniProt | Pfam | InterPro |
| HLASF_1594 | AKH98072 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| HLASF_1667 | AKH98143 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| HLASF_1729 | AKH98204 | signal-transducing histidine kinase [Halan... | CDD | UniProt | Pfam | InterPro |
| HLASF_1768 | AKH98240 | signal-transducing histidine kinase [Halan... | CDD | UniProt | Pfam | InterPro |
| HLASF_1769 | AKH98241 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| HLASF_1890 | AKH98361 | signal-transducing histidine kinase [Halan... | CDD | UniProt | Pfam | InterPro |
| HLASF_1899 | AKH98370 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| HLASF_1937 | AKH98407 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| HLASF_2065 | AKH98527 | histidine kinase [Halanaeroarchaeum sulfur... | CDD | UniProt | Pfam | InterPro |
| HLASF_3032 | AKH98658 | signal-transducing histidine kinase-like p... | CDD | UniProt | Pfam | InterPro |
| HLASF_3033 | AKH98659 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| HLASF_1365 | AKH97851 | chemotaxis protein CheY [Halanaeroarchaeum... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| HLASF_0290 | AKH96797 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| HLASF_0294 | AKH96801 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| HLASF_3082 | AKH98708 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| HLASF_1364 | AKH97850 | chemotaxis-specific methyltransferase CheB [H... | CDD | UniProt | Pfam | InterPro |
| REC-PAS | | | | | | |

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|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HLASF_0292 | AKH96799 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| HLASF_0332 | AKH96839 | response regulator receiver protein [Halan... | CDD | UniProt | Pfam | InterPro |
| HLASF_1337 | AKH97823 | response regulator receiver protein [Halan... | CDD | UniProt | Pfam | InterPro |

Haloarcula hispanica ATCC 33960

HisK, no REC

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|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HAH_0071 | AEM55704 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_0206 | AEM55839 | signal-transducing histidine kinase [Haloa... | CDD | UniProt | Pfam | InterPro |
| HAH_0589 | AEM56212 | signal-transducing histidine kinase-like p... | CDD | UniProt | Pfam | InterPro |
| HAH_0606 | AEM56229 | signal-transducing histidine kinase [Haloa... | CDD | UniProt | Pfam | InterPro |
| HAH_0667 | AEM56290 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |
| HAH_0703 | AEM56326 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |
| HAH_0841 | AEM56461 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_0880 | AEM56498 | signal-transducing histidine kinase-like p... | CDD | UniProt | Pfam | InterPro |
| HAH_0991 | AEM56609 | putative light-sensing histidine kinase [H... | CDD | UniProt | Pfam | InterPro |
| HAH_1163 | AEM56778 | membrane associated histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro |
| HAH_1220 | AEM56835 | putative GAF-PAC signal-transducing histid... | CDD | UniProt | Pfam | InterPro |
| HAH_1223 | AEM56838 | sensory transduction histidine kinase [Hal... | CDD | UniProt | Pfam | InterPro |
| HAH_1592 | AEM57199 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |
| HAH_1615 | AEM57222 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_1618 | AEM57225 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_1706 | AEM57309 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |
| HAH_1721 | AEM57323 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_1966 | AEM57563 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_2073 | AEM57667 | PAS-PAC-PAC sensing histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro |
| HAH_2228 | AEM57817 | membrane bound histidine kinase A [Haloarc... | CDD | UniProt | Pfam | InterPro |
| HAH_2681 | AEM58266 | chemotaxis protein CheA [Haloarcula hispan... | CDD | UniProt | Pfam | InterPro |
| HAH_2781 | AEM58361 | histidine kinase [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_2893 | AEM58470 | adaptive-response sensory-kinase [Haloarcu... | CDD | UniProt | Pfam | InterPro |
| HAH_2907 | AEM58484 | protein kinase-like protein [Haloarcula hi... | CDD | UniProt | Pfam | InterPro |
| HAH_3035 | AEM58609 | adaptive-response sensory-kinase [Haloarcu... | CDD | UniProt | Pfam | InterPro |
| HAH_5014 | AEM59148 | PAS domain S-box (plasmid) [Haloarcula his... | CDD | UniProt | Pfam | InterPro |

REC only

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|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HAH_1222 | AEM56837 | response regulator receiver [Haloarcula hi... | CDD | UniProt | Pfam | InterPro |
| HAH_2067 | AEM57661 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_2670 | AEM58255 | chemotaxis protein CheY [Haloarcula hispan... | CDD | UniProt | Pfam | InterPro |

REC-HisK

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|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HAH_0600 | AEM56223 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_0612 | AEM56235 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_0833 | AEM56453 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_1041 | AEM56659 | signal transducing histidine kinase [Haloa... | CDD | UniProt | Pfam | InterPro |
| HAH_1151 | AEM56766 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_1165 | AEM56780 | signal transducing histidine kinase [Haloa... | CDD | UniProt | Pfam | InterPro |
| HAH_1221 | AEM56836 | signal-transducing histidine kinase [Haloa... | CDD | UniProt | Pfam | InterPro |
| HAH_1275 | AEM56890 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_1439 | AEM57049 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_1487 | AEM57096 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_2068 | AEM57662 | putative light- and oxygen-sensing transcr... | CDD | UniProt | Pfam | InterPro |
| HAH_2167 | AEM57757 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_2332 | AEM57920 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_2810 | AEM58390 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_2849 | AEM58428 | putative light and redox sensing histidine... | CDD | UniProt | Pfam | InterPro |
| HAH_2964 | AEM58538 | adaptive-response sensory-kinase [Haloarcu... | CDD | UniProt | Pfam | InterPro |
| HAH_5035 | AEM59169 | light and oxygen sensing histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| HAH_5036 | AEM59170 | HTR-like protein (plasmid) [Haloarcula his... | CDD | UniProt | Pfam | InterPro |

REC-CheB

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|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HAH_2680 | AEM58265 | chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro |
|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-PAS\GAF

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|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HAH_0305 | AEM55931 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_1327 | AEM56941 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_1746 | AEM57348 | conserved hypothetical protein [Haloarcula... | CDD | UniProt | Pfam | InterPro |
| HAH_2599 | AEM58185 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_3048 | AEM58622 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |
| HAH_1089 | AEM56707 | HTR-like protein [Haloarcula hispanica ATC... | CDD | UniProt | Pfam | InterPro |

REC-HalX

| | | | | | | |
|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HAH_0545 | AEM56169 | HoxA-like transcriptional regulator [Haloa... | CDD | UniProt | Pfam | InterPro |
| HAH_0617 | AEM56240 | signal receiver domain-containing protein ... | CDD | UniProt | Pfam | InterPro |
| HAH_1093 | AEM56711 | HoxA-like transcriptional regulator [Haloa... | CDD | UniProt | Pfam | InterPro |
| HAH_1107 | AEM56724 | HoxA-like transcriptional regulator [Haloa... | CDD | UniProt | Pfam | InterPro |
| HAH_1725 | AEM57327 | HoxA-like transcriptional regulator / resp... | CDD | UniProt | Pfam | InterPro |
| HAH_2172 | AEM57761 | HoxA-like transcriptional regulator [Haloa... | CDD | UniProt | Pfam | InterPro |

Bat

| | | | | | | |
|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HAH_5032 | AEM59166 | bacterio-opsin activator-like protein (pla... | CDD | UniProt | Pfam | InterPro |
| HAH_5327 | AEM59460 | bacterio-opsin activator-like protein (pla... | CDD | UniProt | Pfam | InterPro |

Haloarcula marismortui ATCC 43049

HisK, no REC

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|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| rrnAC0086 | AAV45164 | HTR-like protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC0247 | AAV45304 | putative light-sensing histidine kinase [H... | CDD | UniProt | Pfam | InterPro |
| rrnAC0413 | AAV45448 | gaf-pac signal-transducing histidine kinas... | CDD | UniProt | Pfam | InterPro |
| rrnAC0130 | AAV45202 | signal-transducing histidine kinase-like [... | CDD | UniProt | Pfam | InterPro |
| rrnAC0301 | AAV45356 | signal transducing his kinase [Haloarcula ... | CDD | UniProt | Pfam | InterPro |
| rrnAC0410 | AAV45445 | sensory transduction histidine kinase [Hal... | CDD | UniProt | Pfam | InterPro |
| rrnAC0477 | AAV45502 | membrane associated histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro |
| rrnAC0789 | AAV45776 | putative PAS/PAC sensing his kinase [Haloa... | CDD | UniProt | Pfam | InterPro |
| rrnAC0964 | AAV45935 | signal-transducing histidine kinase-like [... | CDD | UniProt | Pfam | InterPro |
| rrnAC0988 | AAV45956 | HTR-like protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC0991 | AAV45959 | HTR-like protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC1096 | AAV46056 | signal-transducing histidine kinase-like [... | CDD | UniProt | Pfam | InterPro |
| rrnAC1114 | AAV46071 | HTR-like protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC1346 | AAV46277 | signal-transducing histidine kinase-like [... | CDD | UniProt | Pfam | InterPro |
| rrnAC1391 | AAV46320 | HTR-like protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC1486 | AAV46411 | signal-transducing histidine kinase-like [... | CDD | UniProt | Pfam | InterPro |
| rrnAC1501 | AAV46423 | pas-pac-pac sensing his kinase [Haloarcula... | CDD | UniProt | Pfam | InterPro |
| rrnAC1693 | AAV46601 | membrane bound his kinase A [Haloarcula ma... | CDD | UniProt | Pfam | InterPro |
| rrnAC2205 | AAV47041 | chemotaxis protein CheA [Haloarcula marism... | CDD | UniProt | Pfam | InterPro |
| rrnAC2219 | AAV47052 | PhoR protein-like [Haloarcula marismortui ... | CDD | UniProt | Pfam | InterPro |
| rrnAC2337 | AAV47159 | histidine kinase [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC2461 | AAV47268 | adaptive-response sensory-kinase [Haloarcu... | CDD | UniProt | Pfam | InterPro |
| rrnAC2477 | AAV47283 | protein kinase-like [Haloarcula marismortu... | CDD | UniProt | Pfam | InterPro |
| rrnAC2616 | AAV47403 | adaptive-response sensory-kinase [Haloarcu... | CDD | UniProt | Pfam | InterPro |
| rrnAC2694 | AAV47465 | unknown [Haloarcula marismortui ATCC 43049... | CDD | UniProt | Pfam | InterPro |
| rrnAC2789 | AAV47546 | HTR-like protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC2945 | AAV47680 | signal-transducing histidine kinase [Haloa... | CDD | UniProt | Pfam | InterPro |
| rrnAC2997 | AAV47726 | membrane bound his kinase A [Haloarcula ma... | CDD | UniProt | Pfam | InterPro |
| rrnAC3347 | AAV48037 | signal-transducing histidine kinase-like [... | CDD | UniProt | Pfam | InterPro |
| rrnAC3349 | AAV48038 | signal-transducing histidine kinase-like [... | CDD | UniProt | Pfam | InterPro |
| rrnAC3370 | AAV48057 | signal transducing histidine kinase [Haloa... | CDD | UniProt | Pfam | InterPro |
| rrnAC3482 | AAV48156 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |
| rrnB0133 | AAV48329 | putative redox sensing protein [Haloarcula... | CDD | UniProt | Pfam | InterPro |
| rrnB0156 | AAV48345 | putative light and redox sensing histidine... | CDD | UniProt | Pfam | InterPro |
| rrnB0180 | AAV48366 | putative 22-domain light- and oxygen-sensi... | CDD | UniProt | Pfam | InterPro |
| rrnB0295 | AAV48462 | gaf only light sensing his kinase [Haloarc... | CDD | UniProt | Pfam | InterPro |
| rrnB0299 | AAV48465 | nineteen domain light and oxygen sensing h... | CDD | UniProt | Pfam | InterPro |
| *rrnB0178 | AAV48365 | unknown [Haloarcula marismortui ATCC 43049... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| rrnAC0411 | AAV45446 | response regulator receiver [Haloarcula ma... | CDD | UniProt | Pfam | InterPro |
| rrnAC1494 | AAV46417 | HTR-like protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC2168 | AAV47011 | unknown [Haloarcula marismortui ATCC 43049... | CDD | UniProt | Pfam | InterPro |
| rrnAC2194 | AAV47032 | chemotaxis protein CheY [Haloarcula marism... | CDD | UniProt | Pfam | InterPro |
| rrnB0297 | AAV48464 | two-component response regulator [Haloarcu... | CDD | UniProt | Pfam | InterPro |
| rrnB0302 | AAV48467 | response regulator [Haloarcula marismortui... | CDD | UniProt | Pfam | InterPro |
| pNG4019 | AAV44395 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| pNG7155 | AAV44863 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| pNG7156 | AAV44864 | 11-domain light and oxygen sensing his kin... | CDD | UniProt | Pfam | InterPro |
| rrnAC0075 | AAV45155 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC0412 | AAV45447 | signal-transducing histidine kinase [Haloa... | CDD | UniProt | Pfam | InterPro |
| rrnAC0475 | AAV45500 | signal transducing his kinase [Haloarcula ... | CDD | UniProt | Pfam | InterPro |
| rrnAC0487 | AAV45512 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC0574 | AAV45588 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC0794 | AAV45781 | HTR-like protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC0848 | AAV45829 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC1495 | AAV46418 | putative light- and oxygen-sensing transcr... | CDD | UniProt | Pfam | InterPro |
| rrnAC1626 | AAV46539 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC1806 | AAV46695 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC2044 | AAV46901 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC2372 | AAV47188 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC2416 | AAV47229 | putative light and redox sensing histidine... | CDD | UniProt | Pfam | InterPro |
| rrnAC2533 | AAV47335 | adaptive-response sensory-kinase [Haloarcu... | CDD | UniProt | Pfam | InterPro |
| rrnAC2692 | AAV47464 | oxygen and light sensing his kinase [Haloa... | CDD | UniProt | Pfam | InterPro |
| rrnAC3050 | AAV47770 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC3361 | AAV48050 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC3379 | AAV48063 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnB0296 | AAV48463 | signal-transducing histidine kinase-like [... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| rrnAC2204 | AAV47040 | protein-glutamate methylesterase [Haloarcu... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-PAS/GAF

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| rrnAC0339 | AAV45387 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC0356 | AAV45402 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC0674 | AAV45676 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC1142 | AAV46094 | unknown [Haloarcula marismortui ATCC 43049... | CDD | UniProt | Pfam | InterPro |
| rrnAC2109 | AAV46960 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC2211 | AAV47045 | HTR-type protein [Haloarcula marismortui A... | CDD | UniProt | Pfam | InterPro |
| rrnAC3271 | AAV47967 | small putative GAF containing sensor [Halo... | CDD | UniProt | Pfam | InterPro |

REC-HalX

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| rrnAC0361 | AAV45406 | HoxA-type transcriptional regulator [Haloa... | CDD | UniProt | Pfam | InterPro |
| rrnAC0536 | AAV45554 | HoxA-type transcriptional regulator [Haloa... | CDD | UniProt | Pfam | InterPro |
| rrnAC1118 | AAV46075 | HoxA-type transcriptional regulator [Haloa... | CDD | UniProt | Pfam | InterPro |
| rrnAC1630 | AAV46544 | HoxA-type transcriptional regulator [Haloa... | CDD | UniProt | Pfam | InterPro |
| rrnAC3308 | AAV47999 | HoxA-type transcriptional regulator [Haloa... | CDD | UniProt | Pfam | InterPro |
| rrnAC3385 | AAV48068 | signal receiver domain protein [Haloarcula... | CDD | UniProt | Pfam | InterPro |

Bat

| | | | | | | |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| pNG7159 | AAV44867 | bacterio-opsin activator-like protein (pla... | CDD | UniProt | Pfam | InterPro |
| pNG7223 | AAV44926 | bacterio-opsin activator-like protein (pla... | CDD | UniProt | Pfam | InterPro |

HxlR-REC-HalX

| | | | | | | | |
|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|----------------|
| rrnB0301 | AAV48466 | HoxA-type transcriptional regulator [Haloa... | CDD | UniProt | Pfam | InterPro | (WTH-REC-HalX) |
|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|----------------|

Haloarcula sp. CBA1115**HisK, no REC**

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| SG26_02335 | AJF24630 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_02855 | AJF24726 | peptidylprolyl isomerase [Haloarcula sp. C... | CDD | UniProt | Pfam | InterPro |
| SG26_03720 | AJF24880 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_05915 | AJF25298 | chemotaxis protein CheA [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_06410 | AJF25385 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_06835 | AJF25462 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_07545 | AJF25594 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_08310 | AJF25729 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_08955 | AJF25848 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_10810 | AJF26181 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_10895 | AJF26197 | signal transduction protein [Haloarcula sp... | CDD | UniProt | Pfam | InterPro |
| SG26_11375 | AJF26288 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_12065 | AJF26413 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_12245 | AJF26445 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_12770 | AJF26538 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_13610 | AJF26696 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_13895 | AJF26748 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_13910 | AJF26750 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_16040 | AJF27140 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_16050 | AJF27142 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_16440 | AJF27207 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_16520 | AJF27221 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_06905 | AJF27389 | protein kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_11200 | AJF27435 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_15945 | AJF27479 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_17995 | AJF27656 | diguanylate cyclase (plasmid) [Haloarcula ... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| SG26_02825 | AJF24721 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_05860 | AJF25288 | regulator [Haloarcula sp. CBA1115] | CDD | UniProt | Pfam | InterPro |
| SG26_13905 | AJF27459 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| SG26_02830 | AJF24722 | transcriptional regulator [Haloarcula sp. ... | CDD | UniProt | Pfam | InterPro |
| SG26_03360 | AJF24813 | hypothetical protein SG26_03360 [Haloarcul... | CDD | UniProt | Pfam | InterPro |
| SG26_03415 | AJF24824 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_04210 | AJF24974 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_06545 | AJF25411 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_06625 | AJF25424 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_07185 | AJF25525 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_10865 | AJF26191 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_10925 | AJF26203 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_12025 | AJF26406 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_13550 | AJF26684 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_13620 | AJF26698 | signal transduction protein [Haloarcula sp... | CDD | UniProt | Pfam | InterPro |
| SG26_13900 | AJF26749 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_15195 | AJF26981 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_15430 | AJF27026 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_13020 | AJF27451 | signal transduction protein [Haloarcula sp... | CDD | UniProt | Pfam | InterPro |
| SG26_14170 | AJF27467 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_17900 | AJF27638 | histidine kinase (plasmid) [Haloarcula sp... | CDD | UniProt | Pfam | InterPro |
| SG26_17895 | AJF27814 | chemotaxis protein CheY (plasmid) [Haloarc... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| SG26_05910 | AJF25297 | chemotaxis protein [Haloarcula sp. CBA1115... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-PAS\GAF

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| SG26_05495 | AJF25221 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_07610 | AJF25606 | HTR-like protein [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_14645 | AJF26875 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |
| SG26_16640 | AJF27244 | hypothetical protein SG26_16640 [Haloarcul... | CDD | UniProt | Pfam | InterPro |
| SG26_13250 | AJF26631 | chemotaxis protein CheY [Haloarcula sp. CB... | CDD | UniProt | Pfam | InterPro |

REC-HalX

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| SG26_03440 | AJF24828 | DNA-binding protein [Haloarcula sp. CBA11... | CDD | UniProt | Pfam | InterPro |
| SG26_10610 | AJF26145 | DNA-binding protein [Haloarcula sp. CBA11... | CDD | UniProt | Pfam | InterPro |
| SG26_10950 | AJF26208 | histidine kinase [Haloarcula sp. CBA1115] ... | CDD | UniProt | Pfam | InterPro |
| SG26_13270 | AJF26633 | HoxA transcriptional regulator [Haloarcula... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| SG26_13340 | AJF26645 | HoxA transcriptional regulator [Haloarcula...] | CDD | UniProt | Pfam | InterPro |
| SG26_16540 | AJF27225 | DNA-binding protein [Haloarcula sp. CBA111...] | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| SG26_17910 | AJF27640 | bacterio-opsin activator (plasmid) [Haloar...] | CDD | UniProt | Pfam | InterPro |
| SG26_18225 | AJF27697 | bacterio-opsin activator (plasmid) [Haloar...] | CDD | UniProt | Pfam | InterPro |

Halobacterium hubeiense

HisK, no REC

| | | | | | | |
|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| HHUB_1728 | CQH51403 | histidine kinase [Halobacterium hubeiense]... | CDD | UniProt | Pfam | InterPro |
| HHUB_1729 | CQH51412 | sensor box histidine kinase [Halobacterium...] | CDD | UniProt | Pfam | InterPro |
| HHUB_1816 | CQH52193 | histidine kinase [Halobacterium hubeiense]... | CDD | UniProt | Pfam | InterPro |
| HHUB_1911 | CQH52992 | sensor box histidine kinase [Halobacterium...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2038 | CQH54053 | sensor box histidine kinase [Halobacterium...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2095 | CQH54516 | sensor box histidine kinase [Halobacterium...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2110 | CQH54635 | sensor box histidine kinase [Halobacterium...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2152 | CQH54925 | taxis sensor histidine kinase CheA [Haloba...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2376 | CQH56406 | sensor box histidine kinase [Halobacterium...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2520 | CQH57351 | sensor box histidine kinase [Halobacterium...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2546 | CQH57478 | sensor box histidine kinase [Halobacterium...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2629 | CQH57920 | histidine kinase [Halobacterium hubeiense]... | CDD | UniProt | Pfam | InterPro |
| HHUB_3249 | CQH60575 | sensor box histidine kinase [Halobacterium...] | CDD | UniProt | Pfam | InterPro |
| HHUB_3290 | CQH60769 | histidine kinase [Halobacterium hubeiense]... | CDD | UniProt | Pfam | InterPro |
| HHUB_3476 | CQH61531 | sensor box histidine kinase [Halobacterium...] | CDD | UniProt | Pfam | InterPro |
| HHUB_3576 | CQH61886 | MEDS domain histidine kinase [Halobacteriu...] | CDD | UniProt | Pfam | InterPro |
| HHUB_4136 | CQH63613 | sensor box histidine kinase (plasmid) [Hal...] | CDD | UniProt | Pfam | InterPro |
| HHUB_4197 | CQH63826 | MEDS domain histidine kinase (plasmid) [Ha...] | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| HHUB_2154 | CQH54936 | response regulator CheY [Halobacterium hub...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2521 | CQH57358 | receiver box response regulator [Halobacte...] | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| HHUB_1789 | CQH51931 | receiver/sensor box histidine kinase [Halo...] | CDD | UniProt | Pfam | InterPro |
| HHUB_1988 | CQH53656 | receiver/sensor box histidine kinase [Halo...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2058 | CQH54205 | receiver/sensor box histidine kinase [Halo...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2176 | CQH55070 | sensor box histidine kinase [Halobacterium...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2382 | CQH56443 | receiver/sensor box histidine kinase [Halo...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2407 | CQH56616 | receiver/sensor box histidine kinase [Halo...] | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HHUB_2153 | CQH54930 | protein-glutamate methyltransferase CheB [Hal...] | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-PAS\GAF

| | | | | | | |
|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| HHUB_2544 | CQH57469 | receiver/sensor box [Halobacterium hubeien...] | CDD | UniProt | Pfam | InterPro |
| HHUB_1699 | CQH51141 | receiver box response regulator [Halobacte...] | CDD | UniProt | Pfam | InterPro |

REC-HalX

| | | | | | | |
|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| HHUB_1730 | CQH51423 | receiver box response regulator [Halobacte...] | CDD | UniProt | Pfam | InterPro |
| HHUB_1910 | CQH52985 | receiver box response regulator [Halobacte...] | CDD | UniProt | Pfam | InterPro |
| HHUB_1912 | CQH53000 | receiver box response regulator [Halobacte...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2096 | CQH54524 | receiver box response regulator [Halobacte...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2174 | CQH55056 | receiver box response regulator [Halobacte...] | CDD | UniProt | Pfam | InterPro |
| HHUB_2545 | CQH57473 | receiver box response regulator [Halobacte...] | CDD | UniProt | Pfam | InterPro |

BAT

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HHUB_2522 | CQH57367 | receiver/sensor/bat box HTH-10 family tran... | CDD | UniProt | Pfam | InterPro |
| HHUB_4212 | CQH63873 | receiver/sensor/bat box HTH-10 family tran... | CDD | UniProt | Pfam | InterPro |

Halobacterium salinarum NRC-1

HisK, no REC

| | | | | | | |
|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| VNG_0716G | AAG19197 | sensory histidine protein kinase homolog [...] | CDD | UniProt | Pfam | InterPro |
| VNG_0736G | AAG19214 | signal-transducing histidine kinase homolo... | CDD | UniProt | Pfam | InterPro |
| VNG_0916G | AAG19348 | adaptive-response sensory-kinase [Halobact...] | CDD | UniProt | Pfam | InterPro |
| VNG_0971G | AAG19393 | chemotaxis protein [Halobacterium salinaru...] | CDD | UniProt | Pfam | InterPro |
| VNG_1175G | AAG19550 | PhoR protein homolog [Halobacterium salina...] | CDD | UniProt | Pfam | InterPro |
| VNG_1193C | AAG19566 | conserved hypothetical protein [Halobacter...] | CDD | UniProt | Pfam | InterPro |
| VNG_1234C | AAG19596 | conserved hypothetical protein [Halobacter...] | CDD | UniProt | Pfam | InterPro |
| VNG_1374G | AAG19701 | signal-transducing histidine kinase homolo... | CDD | UniProt | Pfam | InterPro |
| VNG_1375C | AAG19702 | conserved hypothetical protein [Halobacter...] | CDD | UniProt | Pfam | InterPro |
| VNG_2037C | AAG20198 | conserved hypothetical protein [Halobacter...] | CDD | UniProt | Pfam | InterPro |
| VNG_2180C | AAG20315 | conserved hypothetical protein [Halobacter...] | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| VNG_0974G | AAG19395 | chemotaxis protein CheY [Halobacterium sal...] | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-HisK

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|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| VNG_2334C | AAG20440 | conserved hypothetical protein [Halobacter...] | CDD | UniProt | Pfam | InterPro |
| VNG_6035G | AAG20731 | Htr-like protein (plasmid) [Halobacterium ...] | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| VNG_0973G | AAG19394 | chemotaxis protein CheB [Halobacterium sal...] | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-HalX

| | | | | | | |
|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| VNG_0735G | AAG19213 | HoxA-like transcriptional regulator [Halob...] | CDD | UniProt | Pfam | InterPro |
| VNG_0917G | AAG19349 | transcriptional regulatory protein [Haloba...] | CDD | UniProt | Pfam | InterPro |
| VNG_2036G | AAG20197 | HoxA-like transcriptional regulator [Halob...] | CDD | UniProt | Pfam | InterPro |

BAT

| VNG_1464G | AAG19769 | Bacterioopsin transcriptional activator Ba... | CDD | UniProt | Pfam | InterPro |
|-------------------------------------|--------------------------|--|---------------------|-------------------------|----------------------|---------------------------------------|
| <u>Halobacterium sp. DL1</u> | | | | | | |
| HisK, no REC | | | | | | |
| HALDL1_01605 | AHG02470 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_07930 | AHG03532 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_08070 | AHG03556 | ATPase [Halobacterium sp. DL1] ... | CDD | UniProt | Pfam | InterPro |
| HALDL1_08930 | AHG03710 | chemotaxis protein CheY [Halobacterium s... | CDD | UniProt | Pfam | InterPro |
| HALDL1_09165 | AHG03752 | chemotaxis protein CheA [Halobacterium s... | CDD | UniProt | Pfam | InterPro |
| HALDL1_09575 | AHG03823 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_10925 | AHG04054 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_12055 | AHG04244 | ATPase [Halobacterium sp. DL1] ... | CDD | UniProt | Pfam | InterPro |
| HALDL1_12510 | AHG04326 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_13135 | AHG04433 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_13475 | AHG04491 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_13795 | AHG04538 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_14765 | AHG04711 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_14850 | AHG04722 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_15195 | AHG04785 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_16045 | AHG04933 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_16380 | AHG05000 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_14015 | AHG05376 | hypothetical protein HALDL1_14015 [Halob... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| HALDL1_09175 | AHG03754 | chemotaxis protein CheY [Halobacterium s... | CDD | UniProt | Pfam | InterPro |
| HALDL1_11895 | AHG04219 | chemotaxis protein CheY [Halobacterium s... | CDD | UniProt | Pfam | InterPro |
| HALDL1_15945 | AHG04916 | histidine kinase [Halobacterium sp. DL1]... | CDD | UniProt | Pfam | InterPro |
| HALDL1_15340 | AHG04813 | response regulator [Halobacterium sp. DL... | CDD | UniProt | Pfam | InterPro |
| HALDL1_16385 | AHG05001 | chemotaxis protein CheY [Halobacterium s... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| HALDL1_02160 | AHG05087 | hypothetical protein HALDL1_02160 [Halob... | CDD | UniProt | Pfam | InterPro |
| HALDL1_05165 | AHG05182 | hypothetical protein HALDL1_05165 [Halob... | CDD | UniProt | Pfam | InterPro |
| HALDL1_13390 | AHG05353 | hypothetical protein HALDL1_13390 [Halob... | CDD | UniProt | Pfam | InterPro |
| HALDL1_15400 | AHG05403 | hypothetical protein HALDL1_15400 [Halob... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| HALDL1_09170 | AHG03753 | chemotaxis protein [Halobacterium sp. DL... | CDD | UniProt | Pfam | InterPro |
| REC-PAS | | | | | | |
| HALDL1_08820 | AHG05257 | hypothetical protein HALDL1_08820 [Halob... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| HALDL1_08065 | AHG03555 | DNA-binding protein [Halobacterium sp. D... | CDD | UniProt | Pfam | InterPro |
| HALDL1_08935 | AHG03711 | DNA-binding protein [Halobacterium sp. D... | CDD | UniProt | Pfam | InterPro |
| HALDL1_09570 | AHG03822 | DNA-binding protein [Halobacterium sp. D... | CDD | UniProt | Pfam | InterPro |
| HALDL1_13790 | AHG04537 | DNA-binding protein [Halobacterium sp. D... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| HALDL1_11890 | AHG05321 | hypothetical protein HALDL1_11890 [Halob... | CDD | UniProt | Pfam | InterPro |
| REC-HalOD1 | | | | | | |
| HALDL1_15395 | AHG04822 | chemotaxis protein CheY [Halobacterium s... | CDD | UniProt | Pfam | InterPro (REC-HalOD1) |

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|---|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| <u>Halobiforma lacisalsi AJ5</u> | | | | | | |
| HisK, no REC | | | | | | |
| C445_00475 | EMA37876 | signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |
| C445_00500 | EMA37881 | signal-transducing histidine kinase [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_00711 | EMA37365 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| C445_02616 | EMA37097 | HTR-like protein [Halobiforma lacisalsi AJ... | CDD | UniProt | Pfam | InterPro |
| C445_03238 | EMA36412 | signal-transducing histidine kinase [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_03768 | EMA35943 | signal-transducing histidine kinase [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_04353 | EMA36058 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| C445_04493 | EMA36086 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| C445_04793 | EMA36146 | chemotaxis protein CheA [Halobiforma lacis... | CDD | UniProt | Pfam | InterPro |
| C445_05838 | EMA35216 | 11-domain light and oxygen sensing his kin... | CDD | UniProt | Pfam | InterPro |
| C445_05878 | EMA35224 | signal-transducing histidine kinase [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_06568 | EMA34890 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| C445_06900 | EMA34630 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| C445_08994 | EMA33813 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| C445_10797 | EMA32599 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| C445_12901 | EMA32213 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| C445_13570 | EMA31847 | signal-transducing histidine kinase [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_14287 | EMA31658 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| C445_14317 | EMA31664 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| C445_14874 | EMA31200 | PAS sensor protein [Halobiforma lacisalsi ... | CDD | UniProt | Pfam | InterPro |
| C445_16569 | EMA30442 | histidine kinase, partial [Halobiforma lac... | CDD | UniProt | Pfam | InterPro |
| C445_16579 | EMA30177 | PAS sensor protein [Halobiforma lacisalsi ... | CDD | UniProt | Pfam | InterPro |
| C445_18181 | EMA28579 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| C445_20027 | EMA27973 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| C445_20052 | EMA27978 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| C445_00470 | EMA37875 | response regulator receiver protein [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_02181 | EMA37012 | response regulator receiver protein [Halob... | CDD | UniProt | Pfam | InterPro |

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|-----------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| C445_04498 | EMA36087 | response regulator receiver protein [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_04818 | EMA35526 | response regulator receiver protein [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_12896 | EMA32212 | response regulator receiver protein [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_14202 | EMA31641 | response regulator receiver protein [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_14322 | EMA31665 | response regulator receiver protein [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_20037 | EMA27975 | response regulator receiver protein [Halob... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| C445_03228 | EMA36410 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| C445_04538 | EMA36095 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |
| C445_09720 | EMA33056 | HTR-like protein [Halobiforma lacisalsi AJ... | CDD | UniProt | Pfam | InterPro |
| C445_12756 | EMA32184 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| C445_18196 | EMA28582 | signal-transducing histidine kinase [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_20390 | EMA27376 | pas domain s-box [Halobiforma lacisalsi AJ... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| C445_00480 | EMA37877 | chemotaxis-specific methylesterase [Halobi... | CDD | UniProt | Pfam | InterPro |
| C445_04813 | EMA35525 | chemotaxis-specific methylesterase [Halobi... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| C445_04553 | EMA36098 | response regulator receiver protein [Halob... | CDD | UniProt | Pfam | InterPro |
| C445_14869 | EMA31199 | response regulator receiver protein [Halob... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| C445_00941 | EMA37411 | PAS/PAC sensor protein [Halobiforma lacisa... | CDD | UniProt | Pfam | InterPro |
| C445_06400 | EMA35105 | response regulator receiver modulated GAF ... | CDD | UniProt | Pfam | InterPro |
| C445_12891 | EMA32211 | response regulator receiver modulated GAF ... | CDD | UniProt | Pfam | InterPro |
| C445_16011 | EMA30827 | PAS/PAC sensor protein [Halobiforma lacisa... | CDD | UniProt | Pfam | InterPro |

Halodesulfurarchaeum formicum

HisK, no REC

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|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| HTSR_0110 | AOW79319 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| HTSR_0391 | AOW79591 | signal-transducing histidine kinase [Halod... | CDD | UniProt | Pfam | InterPro |
| HTSR_0452 | AOW79652 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| HTSR_0469 | AOW79668 | signal transduction histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro |
| HTSR_0473 | AOW79672 | signal-transducing histidine kinase [Halod... | CDD | UniProt | Pfam | InterPro |
| HTSR_0485 | AOW79682 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| HTSR_0621 | AOW79814 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| HTSR_0688 | AOW79880 | signal-transducing histidine kinase [Halod... | CDD | UniProt | Pfam | InterPro |
| HTSR_0987 | AOW80171 | signal transduction histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro |
| HTSR_1224 | AOW80402 | PAS domain-containing sensor histidine kin... | CDD | UniProt | Pfam | InterPro |
| HTSR_1520 | AOW80694 | two-component sensor histidine kinase [Hal... | CDD | UniProt | Pfam | InterPro |
| HTSR_1655 | AOW80825 | PAS domain-containing sensor histidine kin... | CDD | UniProt | Pfam | InterPro |
| HTSR_1685 | AOW80855 | PAS sensor histidine kinase [Halodesulfura... | CDD | UniProt | Pfam | InterPro |
| HTSR_1904 | AOW81068 | histidine kinase [Halodesulfurarchaeum for... | CDD | UniProt | Pfam | InterPro |
| HTSR_2060 | AOW81220 | two-component sensor histidine kinase [Hal... | CDD | UniProt | Pfam | InterPro |

REC only

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|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HTSR_1368 | AOW80544 | chemotaxis protein CheY [Halodesulfurarchae... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

REC-HisK

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|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HTSR_1116 | AOW80296 | multi-sensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro |
| HTSR_1800 | AOW80966 | multi-sensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HTSR_1369 | AOW80545 | chemotaxis-specific methylesterase CheB [Ha... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

REC-HalX

| | | | | | | |
|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HTSR_1559 | AOW80732 | response regulator receiver protein [Halode... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

BAT

| | | | | | | |
|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HTSR_0470 | AOW79669 | PAS sensor histidine kinase [Halodesulfurar... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

Haloferax gibbonsii ATCC 33959

HisK, no REC

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|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| ABY42_00525 | AKU06301 | HTR-like protein [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_00840 | AKU06356 | HTR-like protein [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_00970 | AKU06382 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_02650 | AKU06692 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_02935 | AKU06745 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_03010 | AKU06760 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_05880 | AKU07293 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_05985 | AKU07312 | chemotaxis protein CheA [Haloferax gibbon... | CDD | UniProt | Pfam | InterPro |
| ABY42_06650 | AKU07434 | bacterio-opsin activator [Haloferax gibbo... | CDD | UniProt | Pfam | InterPro |
| ABY42_06845 | AKU07471 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_06950 | AKU07489 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_08095 | AKU07712 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_08810 | AKU07839 | chemotaxis protein CheY [Haloferax gibbon... | CDD | UniProt | Pfam | InterPro |
| ABY42_08880 | AKU07851 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_09550 | AKU07973 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_10615 | AKU08166 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_11660 | AKU08355 | chemotaxis protein CheY [Haloferax gibbon... | CDD | UniProt | Pfam | InterPro |
| ABY42_12560 | AKU08523 | transcriptional regulator [Haloferax gibb... | CDD | UniProt | Pfam | InterPro |
| ABY42_14485 | AKU08884 | chemotaxis protein [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_06335 | AKU09049 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_16170 | AKU09336 | histidine kinase (plasmid) [Haloferax gib... | CDD | UniProt | Pfam | InterPro |

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|--------------------|--------------------------|--|---------------------|-------------------------|----------------------|---------------------------------------|
| ABY42_16475 | AKU09389 | hypothetical protein ABY42_16475 (plasmid... | CDD | UniProt | Pfam | InterPro |
| ABY42_16585 | AKU09408 | histidine kinase (plasmid) [Haloferax gib... | CDD | UniProt | Pfam | InterPro |
| ABY42_16950 | AKU09468 | histidine kinase (plasmid) [Haloferax gib... | CDD | UniProt | Pfam | InterPro |
| ABY42_16975 | AKU09473 | HTR-like protein (plasmid) [Haloferax gib... | CDD | UniProt | Pfam | InterPro |
| ABY42_18000 | AKU09698 | histidine kinase (plasmid) [Haloferax gib... | CDD | UniProt | Pfam | InterPro |
| ABY42_18255 | AKU09807 | HTR-like protein (plasmid) [Haloferax gib... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| ABY42_05905 | AKU07298 | regulator [Haloferax gibbonsii] | CDD | UniProt | Pfam | InterPro |
| ABY42_06660 | AKU07436 | response regulator [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_09885 | AKU08035 | histidine kinase [Haloferax gibbonsii] | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| ABY42_01350 | AKU06453 | histidine kinase [Haloferax gibbonsii] | CDD | UniProt | Pfam | InterPro |
| ABY42_02495 | AKU06663 | histidine kinase [Haloferax gibbonsii] | CDD | UniProt | Pfam | InterPro |
| ABY42_07090 | AKU07514 | chemotaxis protein CheY [Haloferax gibbon... | CDD | UniProt | Pfam | InterPro |
| ABY42_08375 | AKU07764 | chemotaxis protein CheY [Haloferax gibbon... | CDD | UniProt | Pfam | InterPro |
| ABY42_10725 | AKU08181 | HTR-like protein [Haloferax gibbonsii]..... | CDD | UniProt | Pfam | InterPro |
| ABY42_10995 | AKU08230 | histidine kinase [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| ABY42_13320 | AKU08667 | histidine kinase [Haloferax gibbonsii]..... | CDD | UniProt | Pfam | InterPro |
| ABY42_16180 | AKU09338 | HTR-like protein (plasmid) [Haloferax gib... | CDD | UniProt | Pfam | InterPro |
| ABY42_17520 | AKU09606 | PAS sensor protein (plasmid) [Haloferax g... | CDD | UniProt | Pfam | InterPro |
| ABY42_17580 | AKU09618 | histidine kinase (plasmid) [Haloferax gib... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| ABY42_05990 | AKU09043 | chemotaxis protein [Haloferax gibbonsii] ... | CDD | UniProt | Pfam | InterPro |
| REC-PAS\GAF | | | | | | |
| ABY42_10740 | AKU08183 | HTR-like protein [Haloferax gibbonsii]..... | CDD | UniProt | Pfam | InterPro |
| ABY42_11995 | AKU08419 | diguanylate cyclase [Haloferax gibbonsii]... | CDD | UniProt | Pfam | InterPro |
| ABY42_17740 | AKU09648 | HTR-like protein (plasmid) [Haloferax gib... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| ABY42_06210 | AKU07352 | DNA-binding protein [Haloferax gibbonsii]... | CDD | UniProt | Pfam | InterPro |
| ABY42_14490 | AKU08885 | transcriptional regulator [Haloferax gibb... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| ABY42_06655 | AKU07435 | chemotaxis protein CheY [Haloferax gibbon... | CDD | UniProt | Pfam | InterPro |
| ABY42_09520 | AKU09080 | bacterio-opsin activator [Haloferax gibbo... | CDD | UniProt | Pfam | InterPro |
| ABY42_16590 | AKU09409 | bacterio-opsin activator (plasmid) [Halof... | CDD | UniProt | Pfam | InterPro |
| ABY42_16945 | AKU09467 | PAS/PAC sensor protein (plasmid) [Halofer... | CDD | UniProt | Pfam | InterPro |
| REC-HalOD1 | | | | | | |
| ABY42_11475 | AKU08318 | chemotaxis protein CheY [Haloferax gibbon... | CDD | UniProt | Pfam | InterPro (REC-HalOD1) |

Haloferax mediterranei ATCC 33500

HisK, no REC

| | | | | | | |
|--------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HFX_0175 | AFK17916 | HTR-like protein [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| HFX_0206 | AFK17947 | PAS domain S-box [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| HFX_0587 | AFK18312 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |
| HFX_1133 | AFK18849 | HTR-like protein [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| HFX_1211 | AFK18924 | PAS domain S-box [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| HFX_1232 | AFK18945 | taxis sensor histidine kinase cheA / two-c... | CDD | UniProt | Pfam | InterPro |
| HFX_1346 | AFK19057 | putative redox sensing protein [Haloferax ... | CDD | UniProt | Pfam | InterPro |
| HFX_1436 | AFK19145 | PAS domain S-box [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| HFX_1472 | AFK19180 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |
| HFX_1751 | AFK19457 | PAS domain S-box [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| HFX_1895 | AFK19592 | HTR-like protein [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| HFX_2153 | AFK19842 | oxygen and light sensing his kinase [Halof... | CDD | UniProt | Pfam | InterPro |
| HFX_2348 | AFK20035 | HTR-like protein [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| HFX_2522 | AFK20204 | putative light- and oxygen-sensing transcr... | CDD | UniProt | Pfam | InterPro |
| HFX_5121 | AFK20956 | histidine kinase (plasmid) [Haloferax medi... | CDD | UniProt | Pfam | InterPro |
| HFX_5211 | AFK21044 | signal transduction histidine kinase / two... | CDD | UniProt | Pfam | InterPro |
| HFX_6029 | AFK21156 | PAS domain S-box (plasmid) [Haloferax medi... | CDD | UniProt | Pfam | InterPro |
| HFX_6124 | AFK21249 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| HFX_6198 | AFK21321 | light and oxygen sensing histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| HFX_6272 | AFK21395 | signal-transducing histidine kinase-like p... | CDD | UniProt | Pfam | InterPro |
| HFX_0600 | AFK18325 | putative PAS/PAC sensing his kinase [Halof... | CDD | UniProt | Pfam | InterPro |
| HFX_1909 | AFK19606 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |
| HFX_2053 | AFK19745 | histidine kinase [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| HFX_1216 | AFK18929 | response regulator cheY [Haloferax mediter... | CDD | UniProt | Pfam | InterPro |
| HFX_1438 | AFK19147 | response regulator / transcription regulat... | CDD | UniProt | Pfam | InterPro |
| HFX_2988 | AFK20652 | response regulator receiver [Haloferax med... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| HFX_1367 | AFK19077 | HTR-like protein [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| HFX_1521 | AFK19228 | adaptive-response sensory-kinase [Halofera... | CDD | UniProt | Pfam | InterPro |
| HFX_1557 | AFK19264 | light and oxygen sensing histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| HFX_1805 | AFK19509 | PAS domain S-box [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| HFX_1233 | AFK18946 | chemotaxis response regulator containing a... | CDD | UniProt | Pfam | InterPro |
| REC-PAS\GAF | | | | | | |
| HFX_0350 | AFK18086 | HTR-like protein [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro |
| HFX_2989 | AFK20653 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| HFX_6428 | AFK21547 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |

| | | | | | | | |
|-------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|
| REC-HalX | | | | | | | |
| HFX_1279 | AFK18992 | HoxA-like transcriptional regulator [Halof... | CDD | UniProt | Pfam | InterPro | |
| BAT | | | | | | | |
| HFX_1437 | AFK19146 | bacterio-opsin activator [Haloferax medite... | CDD | UniProt | Pfam | InterPro | |
| HFX_2047 | AFK19739 | bacterio-opsin activator-like protein [Hal... | CDD | UniProt | Pfam | InterPro | |
| HFX_2176 | AFK19865 | bacterio-opsin activator-like protein [Hal... | CDD | UniProt | Pfam | InterPro | |
| HFX_5179 | AFK21013 | putative DNA binding protein (plasmid) [Ha... | CDD | UniProt | Pfam | InterPro | |
| REC-HalOD1 | | | | | | | |
| HFX_2316 | AFK20003 | HTR-like protein [Haloferax mediterranei A... | CDD | UniProt | Pfam | InterPro | (REC-HalOD1) |

Haloferax volcanii DS2

| | | | | | | | |
|---------------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|--------------|
| HisK, no REC | | | | | | | |
| HVO_0110 | ADE02962 | sensor box histidine kinase [Haloferax vol... | CDD | UniProt | Pfam | InterPro | |
| HVO_0632 | ADE03168 | sensor box histidine kinase [Haloferax vol... | CDD | UniProt | Pfam | InterPro | |
| HVO_1201 | ADE04627 | sensor box histidine kinase [Haloferax vol... | CDD | UniProt | Pfam | InterPro | |
| HVO_1223 | ADE04296 | taxis sensor histidine kinase CheA [Halofe... | CDD | UniProt | Pfam | InterPro | |
| HVO_1298 | ADE05096 | sensor box histidine kinase [Haloferax vol... | CDD | UniProt | Pfam | InterPro | |
| HVO_1356 | ADE05126 | sensor box histidine kinase [Haloferax vol... | CDD | UniProt | Pfam | InterPro | |
| HVO_1397 | ADE03313 | histidine kinase [Haloferax volcanii DS2] ... | CDD | UniProt | Pfam | InterPro | |
| HVO_1414 | ADE03864 | sensor box histidine kinase [Haloferax vol... | CDD | UniProt | Pfam | InterPro | |
| HVO_1811 | ADE03851 | sensor box histidine kinase [Haloferax vol... | CDD | UniProt | Pfam | InterPro | |
| HVO_2339 | ADE02601 | sensor box histidine kinase [Haloferax vol... | CDD | UniProt | Pfam | InterPro | |
| HVO_2840 | ADE04018 | sensor box histidine kinase [Haloferax vol... | CDD | UniProt | Pfam | InterPro | |
| HVO_A0160 | ADE01815 | sensor box histidine kinase (plasmid) [Hal... | CDD | UniProt | Pfam | InterPro | |
| HVO_B0175 | ADE01614 | histidine kinase (plasmid) [Haloferax volc... | CDD | UniProt | Pfam | InterPro | |
| HVO_B0196 | ADE01294 | histidine kinase (plasmid) [Haloferax volc... | CDD | UniProt | Pfam | InterPro | |
| HVO_B0273 | ADE01372 | sensor box histidine kinase (plasmid) [Hal... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| HVO_1207 | ADE02829 | response regulator CheY [Haloferax volcani... | CDD | UniProt | Pfam | InterPro | |
| HVO_1358 | ADE03521 | receiver box response regulator [Haloferax... | CDD | UniProt | Pfam | InterPro | |
| HVO_2012 | ADE02718 | receiver box response regulator [Haloferax... | CDD | UniProt | Pfam | InterPro | |
| HVO_B0153B | AOP12795 | receiver box response regulator (plasmid) ... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| HVO_0301 | ADE03966 | receiver/sensor box histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro | |
| HVO_1456 | ADE04984 | receiver/sensor box histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro | |
| HVO_1713 | ADE04135 | receiver/sensor box histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro | |
| HVO_2030 | ADE02405 | HTR-like protein [Haloferax volcanii DS2] ... | CDD | UniProt | Pfam | InterPro | |
| HVO_2660 | ADE03121 | receiver/sensor box histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro | |
| HVO_A0550 | ADE02147 | receiver/sensor box histidine kinase (plas... | CDD | UniProt | Pfam | InterPro | |
| HVO_B0143 | ADE01433 | receiver/sensor box histidine kinase (plas... | CDD | UniProt | Pfam | InterPro | |
| HVO_B0154 | ADE01517 | receiver/sensor box histidine kinase (plas... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| HVO_1224 | ADE03699 | protein-glutamate methyltransferase CheB [Hal... | CDD | UniProt | Pfam | InterPro | |
| REC-PAS\GAF | | | | | | | |
| HVO_1953 | ADE04799 | 11-domain light and oxygen sensing his kin... | CDD | UniProt | Pfam | InterPro | |
| HVO_2025 | ADE03702 | receiver/sensor box protein [Haloferax vol... | CDD | UniProt | Pfam | InterPro | |
| HVO_A0540 | ADE01917 | homolog to receiver/sensor box histidine k... | CDD | UniProt | Pfam | InterPro | |
| HVO_A0587 | ADE01998 | receiver/sensor box protein (plasmid) [Hal... | CDD | UniProt | Pfam | InterPro | |
| REC-HalX | | | | | | | |
| HVO_1271 | ADE05178 | receiver box response regulator [Haloferax... | CDD | UniProt | Pfam | InterPro | |
| HVO_2838 | ADE04759 | receiver box response regulator [Haloferax... | CDD | UniProt | Pfam | InterPro | |
| REC-HTH 10 | | | | | | | |
| HVO_B0272 | ADE01630 | receiver box HTH-10 family transcription r... | CDD | UniProt | Pfam | InterPro | |
| BAT | | | | | | | |
| HVO_1357 | ADE03360 | receiver/bat box HTH-10 family transcripti... | CDD | UniProt | Pfam | InterPro | |
| REC-HalOD1 | | | | | | | |
| HVO_2306 | ADE02288 | receiver box response regulator [Haloferax... | CDD | UniProt | Pfam | InterPro | (REC-HalOD1) |

Halogeometricum borinquense DSM 11551

| | | | | | | | |
|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HisK, no REC | | | | | | | |
| Hbor_00580 | ADQ65671 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_05520 | ADQ66153 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_06340 | ADQ66234 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_07060 | ADQ66304 | signal transduction histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro | |
| Hbor_08410 | ADQ66437 | signal transduction histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro | |
| Hbor_09050 | ADQ66500 | histidine kinase with PAS domain [Halogeom... | CDD | UniProt | Pfam | InterPro | |
| Hbor_10620 | ADQ66654 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_11910 | ADQ66780 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_15540 | ADQ67124 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_17680 | ADQ67336 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_18740 | ADQ67441 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_20180 | ADQ67584 | chemotaxis protein histidine kinase-like p... | CDD | UniProt | Pfam | InterPro | |
| Hbor_20420 | ADQ67608 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_23440 | ADQ67904 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_25510 | ADQ68105 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_26640 | ADQ68216 | histidine kinase [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro | |
| Hbor_30190 | ADQ68556 | PAS domain S-box (plasmid) [Halogeometricu... | CDD | UniProt | Pfam | InterPro | |

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|--------------------|--------------------------|---|-----|-------------------------|----------------------|--|
| Hbor_31860 | ADQ68721 | PAS domain S-box (plasmid) [Halogeometricu... | CDD | UniProt | Pfam | InterPro |
| Hbor_32000 | ADQ68735 | PAS domain S-box (plasmid) [Halogeometricu... | CDD | UniProt | Pfam | InterPro |
| Hbor_32650 | ADQ68796 | signal transduction histidine kinase (plas... | CDD | UniProt | Pfam | InterPro |
| Hbor_33990 | ADQ68921 | PAS domain S-box (plasmid) [Halogeometricu... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Hbor_18720 | ADQ67439 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Hbor_20350 | ADQ67601 | response regulator containing CheY-like re... | CDD | UniProt | Pfam | InterPro |
| Hbor_28770 | ADQ68418 | CheY-like receiver domain-containing prote... | CDD | UniProt | Pfam | InterPro |
| Hbor_31840 | ADQ68719 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| Hbor_00810 | ADQ65694 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro |
| Hbor_10850 | ADQ66675 | fused histidine kinase with GAF domain/res... | CDD | UniProt | Pfam | InterPro |
| Hbor_14940 | ADQ67068 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro |
| Hbor_26680 | ADQ68220 | signal transduction histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro |
| Hbor_31450 | ADQ68680 | PAS domain S-box (plasmid) [Halogeometricu... | CDD | UniProt | Pfam | InterPro |
| Hbor_32190 | ADQ68751 | PAS domain S-box (plasmid) [Halogeometricu... | CDD | UniProt | Pfam | InterPro |
| Hbor_34840 | ADQ69004 | PAS domain S-box (plasmid) [Halogeometricu... | CDD | UniProt | Pfam | InterPro |
| Hbor_37050 | ADQ69411 | PAS domain S-box (plasmid) [Halogeometricu... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Hbor_20170 | ADQ67583 | chemotaxis response regulator containing a... | CDD | UniProt | Pfam | InterPro |
| REC-PAS\GAF | | | | | | |
| Hbor_28780 | ADQ68419 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Hbor_32010 | ADQ68736 | PAS domain S-box (plasmid) [Halogeometricu... | CDD | UniProt | Pfam | InterPro |
| Hbor_32660 | ADQ68797 | PAS domain S-box (plasmid) [Halogeometricu... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| Hbor_14340 | ADQ67014 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Hbor_19590 | ADQ67525 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Hbor_31650 | ADQ68700 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| HxLR-REC | | | | | | |
| Hbor_26690 | ADQ68221 | predicted transcriptional regulator [Halog... | CDD | UniProt | Pfam | InterPro (wHTH-REC) |
| BAT | | | | | | |
| Hbor_18730 | ADQ67440 | predicted DNA binding protein [Halogeometr... | CDD | UniProt | Pfam | InterPro |
| Hbor_32330 | ADQ68765 | predicted DNA binding protein (plasmid) [H... | CDD | UniProt | Pfam | InterPro |
| Hbor_09190 | ADQ66514 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro |
| REC-HalOD1 | | | | | | |
| Hbor_07210 | ADQ66319 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro (REC-HalOD1) |
| Other RRs | | | | | | |
| Hbor_14290 | ADQ67009 | PAS domain S-box [Halogeometricum borinque... | CDD | UniProt | Pfam | InterPro (REC-PAS-HisKA) |

Halomicrobium mukohataei DSM 12286

HisK, no REC

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Hmuk_0028 | ACV46179 | histidine kinase [Halomicrobium mukohataei... | CDD | UniProt | Pfam | InterPro |
| Hmuk_0178 | ACV46315 | histidine kinase [Halomicrobium mukohataei... | CDD | UniProt | Pfam | InterPro |
| Hmuk_0249 | ACV46386 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| Hmuk_0501 | ACV46635 | histidine kinase [Halomicrobium mukohataei... | CDD | UniProt | Pfam | InterPro |
| Hmuk_0502 | ACV46636 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hmuk_0626 | ACV46758 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hmuk_0715 | ACV46846 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hmuk_0851 | ACV46982 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hmuk_0999 | ACV47127 | histidine kinase [Halomicrobium mukohataei... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1333 | ACV47454 | histidine kinase [Halomicrobium mukohataei... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1512 | ACV47627 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1570 | ACV47684 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1643 | ACV47757 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2066 | ACV48179 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2120 | ACV48233 | histidine kinase [Halomicrobium mukohataei... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2229 | ACV48342 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2243 | ACV48356 | histidine kinase [Halomicrobium mukohataei... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2385 | ACV48495 | histidine kinase [Halomicrobium mukohataei... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2491 | ACV48599 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2916 | ACV49021 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2976 | ACV49081 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Hmuk_0237 | ACV46374 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |
| Hmuk_0731 | ACV46862 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1899 | ACV48012 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Hmuk_0184 | ACV46321 | histidine kinase [Halomicrobium mukohataei... | CDD | UniProt | Pfam | InterPro |
| Hmuk_0418 | ACV46552 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1670 | ACV47784 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1762 | ACV47876 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1898 | ACV48011 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2699 | ACV48805 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2813 | ACV48918 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hmuk_3311 | ACV49406 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Hmuk_0248 | ACV46385 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|

REC-PAS

| | | | | | | |
|-------------------|--------------------------|---|-----|-------------------------|----------------------|--|
| Hmuk_3154 | ACV49259 | putative PAS/PAC sensor protein [Halomicro... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| Hmuk_0173 | ACV46310 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1584 | ACV47698 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1664 | ACV47778 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1750 | ACV47864 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1820 | ACV47934 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |
| Hmuk_1875 | ACV47989 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2371 | ACV48483 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2545 | ACV48653 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |
| Hmuk_2559 | ACV48665 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| Hmuk_3382 | ACV49467 | putative PAS/PAC sensor protein (plasmid) ... | CDD | UniProt | Pfam | InterPro |
| REC-HalOD2 | | | | | | |
| Hmuk_0286 | ACV46423 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro (REC-HalOD2) |
| Other RRs | | | | | | |
| Hmuk_0285 | ACV46422 | response regulator receiver protein [Halom... | CDD | UniProt | Pfam | InterPro (REC-PAS-PAS-HisKA) |

Halopiger xanaduensis SH-6

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halxa_0710 | AEH35349 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halxa_0853 | AEH35492 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halxa_0871 | AEH35509 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| Halxa_1160 | AEH35793 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| Halxa_1205 | AEH35838 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halxa_1517 | AEH36149 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Halxa_1872 | AEH36500 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halxa_2070 | AEH36695 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halxa_2205 | AEH36830 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| Halxa_2555 | AEH37173 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| Halxa_2598 | AEH37216 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Halxa_2606 | AEH37224 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halxa_2975 | AEH37591 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halxa_3261 | AEH37873 | PAS sensor protein [Halopiger xanaduensis ... | CDD | UniProt | Pfam | InterPro |
| Halxa_3340 | AEH37952 | histidine kinase [Halopiger xanaduensis SH... | CDD | UniProt | Pfam | InterPro |
| Halxa_3341 | AEH37953 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halxa_3515 | AEH38126 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| Halxa_3601 | AEH38210 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halxa_3718 | AEH38325 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halxa_0502 | AEH39102 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halxa_0520 | AEH39119 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halxa_0578 | AEH39168 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halxa_0654 | AEH39233 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halxa_0655 | AEH39234 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halxa_0677 | AEH39250 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halxa_0056 | AEH39308 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halxa_0167 | AEH39410 | response regulator receiver (plasmid) [Hal... | CDD | UniProt | Pfam | InterPro |
| Halxa_2553 | AEH37171 | response regulator receiver protein [Halop... | CDD | UniProt | Pfam | InterPro |
| Halxa_2712 | AEH37329 | response regulator receiver protein [Halop... | CDD | UniProt | Pfam | InterPro |
| Halxa_2962 | AEH37578 | response regulator receiver protein [Halop... | CDD | UniProt | Pfam | InterPro |
| Halxa_2976 | AEH37592 | response regulator receiver [Halopiger xan... | CDD | UniProt | Pfam | InterPro |
| Halxa_3434 | AEH38045 | response regulator receiver protein [Halop... | CDD | UniProt | Pfam | InterPro |
| Halxa_3516 | AEH38127 | response regulator receiver protein [Halop... | CDD | UniProt | Pfam | InterPro |
| Halxa_3600 | AEH38209 | response regulator receiver protein [Halop... | CDD | UniProt | Pfam | InterPro |
| Halxa_4206 | AEH38808 | response regulator receiver protein [Halop... | CDD | UniProt | Pfam | InterPro |
| Halxa_4207 | AEH38809 | response regulator receiver protein [Halop... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halxa_1706 | AEH36337 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halxa_3980 | AEH38585 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halxa_2554 | AEH37172 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro |
| Halxa_3514 | AEH38125 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro |

REC-HalX

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halxa_2594 | AEH37212 | response regulator receiver protein [Halop... | CDD | UniProt | Pfam | InterPro |
| Halxa_3262 | AEH37874 | HalX domain protein [Halopiger xanaduensis... | CDD | UniProt | Pfam | InterPro |

BAT

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halxa_1652 | AEH36284 | response regulator receiver modulated GAF ... | CDD | UniProt | Pfam | InterPro |
| Halxa_3599 | AEH38208 | response regulator receiver modulated GAF ... | CDD | UniProt | Pfam | InterPro |

Haloquadratum walsbyi DSM 16790

HisK, no REC

| | | | | | | |
|----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| HQ_1280A | CAJ51409 | sensor box histidine kinase [Haloquadratum... | CDD | UniProt | Pfam | InterPro |
| HQ_1910A | CAJ52038 | sensor box histidine kinase [Haloquadratum... | CDD | UniProt | Pfam | InterPro |
| HQ_2749A | CAJ52857 | sensor box histidine kinase [Haloquadratum... | CDD | UniProt | Pfam | InterPro |
| HQ_2814A | CAJ52921 | sensor box histidine kinase [Haloquadratum... | CDD | UniProt | Pfam | InterPro |

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|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------|
| REC only | | | | | | | |
| HQ_2751A | CAJ52859 | receiver box response regulator [Haloquadr... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| HQ_1073A | CAJ51203 | receiver/sensor box histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro | |
| HQ_2141A | CAJ52268 | receiver/sensor box histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro | |
| HQ_4020A | CAJ51110 | receiver/sensor box histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro | |
| Hxlr-REC | | | | | | | |
| HQ_1946A | CAJ52074 | HxlR family transcription regulator / rece... | CDD | UniProt | Pfam | InterPro | (wHTH-REC) |
| BAT | | | | | | | |
| HQ_2750A | CAJ52858 | receiver/bat box HTH-10 family transcripti... | CDD | UniProt | Pfam | InterPro | |

Halorhabdus tiamatea SARL4B

HisK, no REC

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HTIA_0018 | CCQ32170 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| HTIA_0112 | CCQ32263 | signal transduction histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro | |
| HTIA_0322 | CCQ32472 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| HTIA_0434 | CCQ32580 | signal-transducing histidine kinase [Halor... | CDD | UniProt | Pfam | InterPro | |
| HTIA_0795 | CCQ32935 | signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro | |
| HTIA_0884 | CCQ33024 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| HTIA_1402 | CCQ33530 | histidine kinase [Halorhabdus tiamatea SAR... | CDD | UniProt | Pfam | InterPro | |
| HTIA_1479 | CCQ33606 | signal-transducing histidine kinase [Halor... | CDD | UniProt | Pfam | InterPro | |
| HTIA_1523 | CCQ33650 | histidine kinase [Halorhabdus tiamatea SAR... | CDD | UniProt | Pfam | InterPro | |
| HTIA_1528 | CCQ33655 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro | |
| HTIA_1575 | CCQ33702 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| HTIA_1926 | CCQ34044 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| HTIA_2045 | CCQ34159 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| HTIA_2055 | CCQ34169 | signal-transducing histidine kinase [Halor... | CDD | UniProt | Pfam | InterPro | |
| HTIA_2153 | CCQ34265 | membrane bound his kinase A [Halorhabdus t... | CDD | UniProt | Pfam | InterPro | |
| HTIA_2580 | CCQ34686 | signal-transducing histidine kinase-like p... | CDD | UniProt | Pfam | InterPro | |
| HTIA_2756 | CCQ34858 | signal-transducing histidine kinase [Halor... | CDD | UniProt | Pfam | InterPro | |
| HTIA_p2847 | CCQ34949 | histidine kinase (plasmid) [Halorhabdus ti... | CDD | UniProt | Pfam | InterPro | |

REC only

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HTIA_0228 | CCQ32379 | signal transduction response regulator [Ha... | CDD | UniProt | Pfam | InterPro | |
| HTIA_0805 | CCQ32945 | chemotaxis regulator-transmits chemorecept... | CDD | UniProt | Pfam | InterPro | |
| HTIA_1483 | CCQ33610 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro | |
| HTIA_2678 | CCQ34783 | signal transduction histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro | |

REC-HisK

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HTIA_0110 | CCQ32261 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| HTIA_0113 | CCQ32264 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| HTIA_0716 | CCQ32856 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| HTIA_1478 | CCQ33605 | 11-domain light and oxygen sensing his kin... | CDD | UniProt | Pfam | InterPro | |
| HTIA_1530 | CCQ33657 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| HTIA_1900 | CCQ34019 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| HTIA_2537 | CCQ34643 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |

REC-CheB

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HTIA_0796 | CCQ32936 | chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

REC-HalX

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HTIA_0537 | CCQ32682 | HoxA-like transcriptional regulator [Halor... | CDD | UniProt | Pfam | InterPro | |
| HTIA_0664 | CCQ32807 | HoxA-like transcriptional regulator [Halor... | CDD | UniProt | Pfam | InterPro | |
| HTIA_1808 | CCQ33932 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro | |
| HTIA_2784 | CCQ34886 | HalX-type transcriptional regulator [Halor... | CDD | UniProt | Pfam | InterPro | |

BAT

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HTIA_0508 | CCQ32653 | bacterio-opsin activator HTH domain protei... | CDD | UniProt | Pfam | InterPro | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

Halorhabdus utahensis DSM 12940

HisK, no REC

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Huta_0059 | ACV10248 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Huta_0175 | ACV10363 | histidine kinase [Halorhabdus utahensis DS... | CDD | UniProt | Pfam | InterPro | |
| Huta_0199 | ACV10387 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Huta_0253 | ACV10441 | histidine kinase [Halorhabdus utahensis DS... | CDD | UniProt | Pfam | InterPro | |
| Huta_0313 | ACV10500 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Huta_0421 | ACV10608 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Huta_0929 | ACV11112 | histidine kinase [Halorhabdus utahensis DS... | CDD | UniProt | Pfam | InterPro | |
| Huta_0942 | ACV11125 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro | |
| Huta_0978 | ACV11161 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Huta_1026 | ACV11209 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Huta_1464 | ACV11640 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Huta_1519 | ACV11694 | histidine kinase [Halorhabdus utahensis DS... | CDD | UniProt | Pfam | InterPro | |
| Huta_1570 | ACV11745 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro | |
| Huta_1591 | ACV11766 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Huta_1646 | ACV11820 | histidine kinase [Halorhabdus utahensis DS... | CDD | UniProt | Pfam | InterPro | |
| Huta_1743 | ACV11915 | histidine kinase [Halorhabdus utahensis DS... | CDD | UniProt | Pfam | InterPro | |
| Huta_1749 | ACV11921 | histidine kinase [Halorhabdus utahensis DS... | CDD | UniProt | Pfam | InterPro | |
| Huta_1771 | ACV11943 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Huta_1802 | ACV11974 | signal transduction histidine kinase regul... | CDD | UniProt | Pfam | InterPro | |
| Huta_1868 | ACV12038 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Huta_2078 | ACV12245 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |

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|--------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Huta_2186 | ACV12353 | histidine kinase [Halorhabdus utahensis DS... | CDD | UniProt | Pfam | InterPro |
| Huta_2195 | ACV12362 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Huta_2204 | ACV12371 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Huta_2266 | ACV12433 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Huta_2318 | ACV12485 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Huta_2352 | ACV12518 | histidine kinase [Halorhabdus utahensis DS... | CDD | UniProt | Pfam | InterPro |
| Huta_2425 | ACV12591 | membrane bound his kinase A [Halorhabdus u... | CDD | UniProt | Pfam | InterPro |
| Huta_2850 | ACV13011 | histidine kinase [Halorhabdus utahensis DS... | CDD | UniProt | Pfam | InterPro |
| Huta_2881 | ACV13042 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Huta_2923 | ACV13084 | histidine kinase [Halorhabdus utahensis DS... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Huta_0953 | ACV11136 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Huta_1567 | ACV11742 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Huta_1869 | ACV12039 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Huta_3023 | ACV13184 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| Huta_0261 | ACV10449 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Huta_0330 | ACV10517 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Huta_0496 | ACV10683 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Huta_0888 | ACV11071 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Huta_1511 | ACV11686 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Huta_1571 | ACV11746 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Huta_1870 | ACV12040 | response regulator receiver sensor signal ... | CDD | UniProt | Pfam | InterPro |
| Huta_2351 | ACV12517 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Huta_2409 | ACV12575 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Huta_2488 | ACV12652 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Huta_3020 | ACV13181 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Huta_0943 | ACV11126 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro |
| REC-PAS/GAF | | | | | | |
| Huta_0510 | ACV10697 | putative PAS/PAC sensor protein [Halorhabd... | CDD | UniProt | Pfam | InterPro |
| Huta_1892 | ACV12061 | putative PAS/PAC sensor protein [Halorhabd... | CDD | UniProt | Pfam | InterPro |
| Huta_2350 | ACV12516 | putative GAF sensor protein [Halorhabdus u... | CDD | UniProt | Pfam | InterPro |
| Huta_2566 | ACV12730 | response regulator receiver modulated GAF ... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| Huta_0359 | ACV10546 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Huta_0772 | ACV10957 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Huta_1740 | ACV11912 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Huta_1770 | ACV11942 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Huta_1773 | ACV11945 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Huta_1858 | ACV12028 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Huta_2885 | ACV13046 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| Huta_0317 | ACV10504 | putative PAS/PAC sensor protein [Halorhabd... | CDD | UniProt | Pfam | InterPro |
| Huta_2079 | ACV12246 | putative PAS/PAC sensor protein [Halorhabd... | CDD | UniProt | Pfam | InterPro |

Halorientalis sp. IM1011

HisK, no REC

| | | | | | | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| BV210_01020 | AQL41381 | hypothetical protein BV210_01020 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_01525 | AQL41472 | histidine kinase [Halorientalis sp. IM101... | CDD | UniProt | Pfam | InterPro |
| BV210_02185 | AQL41594 | hypothetical protein BV210_02185 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_02225 | AQL41602 | hypothetical protein BV210_02225 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_03255 | AQL41792 | hypothetical protein BV210_03255 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_03425 | AQL41822 | histidine kinase [Halorientalis sp. IM101... | CDD | UniProt | Pfam | InterPro |
| BV210_03465 | AQL41829 | hypothetical protein BV210_03465 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_03490 | AQL41834 | hypothetical protein BV210_03490 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_04000 | AQL41928 | hypothetical protein BV210_04000 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_05560 | AQL44485 | diguanylate cyclase [Halorientalis sp. IM... | CDD | UniProt | Pfam | InterPro |
| BV210_05580 | AQL42215 | hypothetical protein BV210_05580 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_05725 | AQL42242 | hypothetical protein BV210_05725 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_07575 | AQL42576 | hypothetical protein BV210_07575 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_08000 | AQL42656 | hypothetical protein BV210_08000 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_08470 | AQL42742 | hypothetical protein BV210_08470 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_08685 | AQL42782 | hypothetical protein BV210_08685 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_08815 | AQL42805 | hypothetical protein BV210_08815 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_08875 | AQL42817 | hypothetical protein BV210_08875 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_09240 | AQL42886 | hypothetical protein BV210_09240 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_09745 | AQL42979 | hypothetical protein BV210_09745 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_10135 | AQL43053 | hypothetical protein BV210_10135 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_10340 | AQL43087 | chemotaxis protein CheA [Halorientalis sp... | CDD | UniProt | Pfam | InterPro |
| BV210_10560 | AQL43129 | hypothetical protein BV210_10560 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_10935 | AQL43201 | histidine kinase [Halorientalis sp. IM101... | CDD | UniProt | Pfam | InterPro |
| BV210_11115 | AQL43234 | hypothetical protein BV210_11115 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_12030 | AQL43373 | hypothetical protein BV210_12030 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_12210 | AQL43408 | hypothetical protein BV210_12210 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_12340 | AQL43432 | hypothetical protein BV210_12340 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_12765 | AQL43513 | hypothetical protein BV210_12765 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_13050 | AQL43566 | histidine kinase [Halorientalis sp. IM101... | CDD | UniProt | Pfam | InterPro |

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|----------------------|--------------------------|--|-----|-------------------------|----------------------|--|
| BV210_13185 | AQL43591 | hypothetical protein BV210_13185 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_13315 | AQL43616 | hypothetical protein BV210_13315 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_13825 | AQL43716 | hypothetical protein BV210_13825 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_14240 | AQL43791 | hypothetical protein BV210_14240 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_14565 | AQL43852 | hypothetical protein BV210_14565 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_14660 | AQL43870 | hypothetical protein BV210_14660 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_14670 | AQL43872 | hypothetical protein BV210_14670 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_15625 | AQL44584 | hypothetical protein BV210_15625 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_17915 | AQL44642 | hypothetical protein BV210_17915 (plasmid... | CDD | UniProt | Pfam | InterPro |
| BV210_18265 | AQL44701 | hypothetical protein BV210_18265 (plasmid... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| BV210_10385 | AQL43096 | response regulator [Halorientalis sp. IM1... | CDD | UniProt | Pfam | InterPro |
| BV210_17890 | AQL44639 | hypothetical protein BV210_17890 (plasmid... | CDD | UniProt | Pfam | InterPro |
| BV210_01025 | AQL41382 | two-component system response regulator [... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| BV210_00825 | AQL41345 | hybrid sensor histidine kinase/response r... | CDD | UniProt | Pfam | InterPro |
| BV210_01030 | AQL41383 | hypothetical protein BV210_01030 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_01800 | AQL41523 | hypothetical protein BV210_01800 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_03535 | AQL41843 | hypothetical protein BV210_03535 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_08710 | AQL42785 | hypothetical protein BV210_08710 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_13280 | AQL43610 | hypothetical protein BV210_13280 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_13800 | AQL43711 | hypothetical protein BV210_13800 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_14335 | AQL43809 | hypothetical protein BV210_14335 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_15870 | AQL44090 | hypothetical protein BV210_15870 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_16005 | AQL44117 | hypothetical protein BV210_16005 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_17885 | AQL44638 | histidine kinase (plasmid) [Halorientalis... | CDD | UniProt | Pfam | InterPro |
| BV210_17970 | AQL44653 | hypothetical protein BV210_17970 (plasmid... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| BV210_10345 | AQL43088 | chemotaxis response regulator protein-glu... | CDD | UniProt | Pfam | InterPro |
| REC-PAS | | | | | | |
| BV210_03535 | AQL41843 | hypothetical protein BV210_03535 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_09375 | AQL42912 | hypothetical protein BV210_09375 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_14340 | AQL43810 | hypothetical protein BV210_14340 [Halorie... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| BV210_00205 | AQL44418 | HoxA transcriptional regulator [Halorient... | CDD | UniProt | Pfam | InterPro |
| BV210_01670 | AQL41501 | hypothetical protein BV210_01670 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_12200 | AQL43406 | DNA-binding protein [Halorientalis sp. IM... | CDD | UniProt | Pfam | InterPro |
| BV210_12205 | AQL43407 | hypothetical protein BV210_12205 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_12410 | AQL43442 | response regulator [Halorientalis sp. IM1... | CDD | UniProt | Pfam | InterPro |
| BV210_13180 | AQL43590 | response regulator [Halorientalis sp. IM1... | CDD | UniProt | Pfam | InterPro |
| BV210_14620 | AQL43862 | DNA-binding protein [Halorientalis sp. IM... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| BV210_00260 | AQL41236 | hypothetical protein BV210_00260 [Halorie... | CDD | UniProt | Pfam | InterPro |
| BV210_01770 | AQL41517 | bacterio-opsin activator [Halorientalis s... | CDD | UniProt | Pfam | InterPro |
| HxlR-REC-HalX | | | | | | |
| BV210_17895 | AQL44640 | HoxA transcriptional regulator (plasmid) ... | CDD | UniProt | Pfam | InterPro (wHTH-REC-HalX) |
| REC-HalOD2 | | | | | | |
| BV210_03540 | AQL41844 | hypothetical protein BV210_03540 [Halorie... | CDD | UniProt | Pfam | InterPro (REC-HalOD2) |

Halorubrum lacusprofundi ATCC 49239

HisK, no REC

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Hlac_0258 | ACM55863 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_0318 | ACM55922 | putative PAS/PAC sensor protein [Halorubru... | CDD | UniProt | Pfam | InterPro |
| Hlac_0469 | ACM56071 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_0718 | ACM56320 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_0919 | ACM56517 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| Hlac_0920 | ACM56518 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hlac_1000 | ACM56597 | histidine kinase [Halorubrum lacusprofundi... | CDD | UniProt | Pfam | InterPro |
| Hlac_1231 | ACM56823 | histidine kinase [Halorubrum lacusprofundi... | CDD | UniProt | Pfam | InterPro |
| Hlac_1440 | ACM57028 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_1519 | ACM57107 | histidine kinase [Halorubrum lacusprofundi... | CDD | UniProt | Pfam | InterPro |
| Hlac_1704 | ACM57288 | histidine kinase [Halorubrum lacusprofundi... | CDD | UniProt | Pfam | InterPro |
| Hlac_1800 | ACM57379 | histidine kinase [Halorubrum lacusprofundi... | CDD | UniProt | Pfam | InterPro |
| Hlac_1809 | ACM57388 | histidine kinase [Halorubrum lacusprofundi... | CDD | UniProt | Pfam | InterPro |
| Hlac_1908 | ACM57486 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hlac_1946 | ACM57524 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_2051 | ACM57629 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_2126 | ACM57703 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_2158 | ACM57735 | histidine kinase [Halorubrum lacusprofundi... | CDD | UniProt | Pfam | InterPro |
| Hlac_2263 | ACM57839 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| Hlac_2389 | ACM57964 | histidine kinase [Halorubrum lacusprofundi... | CDD | UniProt | Pfam | InterPro |
| Hlac_2596 | ACM58168 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_2652 | ACM58223 | signal transduction histidine kinase regul... | CDD | UniProt | Pfam | InterPro |
| Hlac_2684 | ACM58255 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_2889 | ACM58447 | histidine kinase [Halorubrum lacusprofundi... | CDD | UniProt | Pfam | InterPro |
| Hlac_3302 | ACM58826 | histidine kinase (plasmid) [Halorubrum lac... | CDD | UniProt | Pfam | InterPro |
| Hlac_3597 | ACM59104 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_3605 | ACM59111 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|-----------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Hlac_3606 | ACM59112 | histidine kinase (plasmid) [Halorubrum lac... | CDD | UniProt | Pfam | InterPro |
| Hlac_3654 | ACM59156 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_3655 | ACM59157 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_3657 | ACM59159 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Hlac_3664 | ACM59164 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Hlac_0694 | ACM56296 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Hlac_2561 | ACM58133 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| Hlac_1004 | ACM56601 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hlac_1349 | ACM56941 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Hlac_2262 | ACM57838 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| Hlac_1208 | ACM56802 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Hlac_2012 | ACM57590 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| Hlac_2553 | ACM58125 | response regulator receiver protein [Halor... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| Hlac_3274 | ACM58800 | response regulator receiver protein (plasm... | CDD | UniProt | Pfam | InterPro |

Halostagnicola larsenii XH-48

HisK, no REC

| | | | | | | |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HALLA_00410 | AHG01785 | hypothetical protein HALLA_00410 (plasmid... | CDD | UniProt | Pfam | InterPro |
| HALLA_01675 | AHG02037 | hypothetical protein HALLA_01675 (plasmid... | CDD | UniProt | Pfam | InterPro |
| HALLA_07140 | AHF98659 | histidine kinase [Halostagnicola larsenii... | CDD | UniProt | Pfam | InterPro |
| HALLA_08845 | AHF98957 | histidine kinase [Halostagnicola larsenii... | CDD | UniProt | Pfam | InterPro |
| HALLA_10825 | AHF99276 | histidine kinase [Halostagnicola larsenii... | CDD | UniProt | Pfam | InterPro |
| HALLA_11420 | AHF99383 | histidine kinase [Halostagnicola larsenii... | CDD | UniProt | Pfam | InterPro |
| HALLA_13025 | AHF99575 | histidine kinase [Halostagnicola larsenii... | CDD | UniProt | Pfam | InterPro |
| HALLA_13485 | AHF99643 | histidine kinase [Halostagnicola larsenii... | CDD | UniProt | Pfam | InterPro |
| HALLA_14880 | AHF99883 | histidine kinase [Halostagnicola larsenii... | CDD | UniProt | Pfam | InterPro |
| HALLA_16575 | AHG00173 | chemotaxis protein CheA [Halostagnicola l... | CDD | UniProt | Pfam | InterPro |
| HALLA_19755 | AHG00692 | histidine kinase [Halostagnicola larsenii... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HALLA_00975 | AHG01898 | chemotaxis protein CheY (plasmid) [Halost... | CDD | UniProt | Pfam | InterPro |
| HALLA_07145 | AHF98660 | chemotaxis protein CheY [Halostagnicola l... | CDD | UniProt | Pfam | InterPro |
| HALLA_09815 | AHF99097 | DNA-binding protein [Halostagnicola larse... | CDD | UniProt | Pfam | InterPro |
| HALLA_13235 | AHF99612 | chemotaxis protein CheY [Halostagnicola l... | CDD | UniProt | Pfam | InterPro |
| HALLA_16190 | AHG00109 | chemotaxis protein CheY [Halostagnicola l... | CDD | UniProt | Pfam | InterPro |
| HALLA_18040 | AHG00415 | chemotaxis protein CheY [Halostagnicola l... | CDD | UniProt | Pfam | InterPro |
| HALLA_20920 | AHG02369 | histidine kinase (plasmid) [Halostagnicol... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HALLA_15625 | AHG01075 | hypothetical protein HALLA_15625 [Halosta... | CDD | UniProt | Pfam | InterPro |
| HALLA_20480 | AHG02281 | hypothetical protein HALLA_20480 (plasmid... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HALLA_16560 | AHG00171 | chemotaxis protein [Halostagnicola larsen... | CDD | UniProt | Pfam | InterPro |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

REC-HalX

| | | | | | | |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HALLA_02410 | AHG01250 | hypothetical protein HALLA_02410 (plasmid... | CDD | UniProt | Pfam | InterPro |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

BAT

| | | | | | | |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| HALLA_00405 | AHG01784 | hypothetical protein HALLA_00405 (plasmid... | CDD | UniProt | Pfam | InterPro |
| HALLA_07150 | AHF98661 | diguanylate cyclase [Halostagnicola larse... | CDD | UniProt | Pfam | InterPro |
| HALLA_15955 | AHG00073 | bacterio-opsin activator [Halostagnicola ... | CDD | UniProt | Pfam | InterPro |

Other RRs

| | | | | | | |
|-------------|--------------------------|--|-----|-------------------------|----------------------|-------------------------------------|
| HALLA_02415 | AHG01251 | hypothetical protein HALLA_02415 (plasmid... | CDD | UniProt | Pfam | InterPro (REC-KaiC) |
|-------------|--------------------------|--|-----|-------------------------|----------------------|-------------------------------------|

Haloterrigena daqingensis

HisK, no REC

| | | | | | | |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| BB347_00640 | APX95228 | histidine kinase [Haloterrigena daqingens... | CDD | UniProt | Pfam | InterPro |
| BB347_01435 | APX95380 | histidine kinase [Haloterrigena daqingens... | CDD | UniProt | Pfam | InterPro |
| BB347_02130 | APX95506 | histidine kinase [Haloterrigena daqingens... | CDD | UniProt | Pfam | InterPro |
| BB347_02240 | APX95526 | histidine kinase [Haloterrigena daqingens... | CDD | UniProt | Pfam | InterPro |
| BB347_02910 | APX95646 | two-component sensor histidine kinase [Ha... | CDD | UniProt | Pfam | InterPro |
| BB347_03165 | APX95695 | histidine kinase [Haloterrigena daqingens... | CDD | UniProt | Pfam | InterPro |
| BB347_03520 | APX95757 | histidine kinase [Haloterrigena daqingens... | CDD | UniProt | Pfam | InterPro |
| BB347_03870 | APX95824 | histidine kinase [Haloterrigena daqingens... | CDD | UniProt | Pfam | InterPro |
| BB347_04065 | APX95859 | histidine kinase [Haloterrigena daqingens... | CDD | UniProt | Pfam | InterPro |
| BB347_09065 | APX96754 | histidine kinase [Haloterrigena daqingens... | CDD | UniProt | Pfam | InterPro |
| BB347_14305 | APX97690 | histidine kinase [Haloterrigena daqingens... | CDD | UniProt | Pfam | InterPro |
| BB347_16020 | APX97995 | two-component sensor histidine kinase [Ha... | CDD | UniProt | Pfam | InterPro |
| BB347_16315 | APX98051 | PAS domain-containing sensor histidine ki... | CDD | UniProt | Pfam | InterPro |
| BB347_06115 | APX98154 | PAS domain-containing sensor histidine ki... | CDD | UniProt | Pfam | InterPro |
| BB347_16855 | APX98378 | histidine kinase (plasmid) [Haloterrigena... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| BB347_00645 | APX95229 | two-component system response regulator [... | CDD | UniProt | Pfam | InterPro |
| BB347_00805 | APX95260 | response regulator [Haloterrigena daqinge... | CDD | UniProt | Pfam | InterPro |
| BB347_01860 | APX95458 | response regulator [Haloterrigena daqinge... | CDD | UniProt | Pfam | InterPro |
| BB347_04595 | APX95954 | response regulator [Haloterrigena daqinge... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|-----------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| BB347_05765 | APX98152 | response regulator [Haloterrigena daqinge... | CDD | UniProt | Pfam | InterPro |
| BB347_06110 | APX96233 | response regulator [Haloterrigena daqinge... | CDD | UniProt | Pfam | InterPro |
| BB347_16815 | APX98370 | response regulator (plasmid) [Haloterrige... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| BB347_00005 | APX95111 | hybrid sensor histidine kinase/response r... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| BB347_01855 | APX95457 | chemotaxis response regulator protein-glu... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| BB347_03875 | APX95825 | DNA-binding protein [Haloterrigena daqing... | CDD | UniProt | Pfam | InterPro |
| BB347_00960 | APX95290 | HoxA transcriptional regulator [Haloterr... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| BB347_00650 | APX95230 | diguanylate cyclase [Haloterrigena daqing... | CDD | UniProt | Pfam | InterPro |
| BB347_09670 | APX96866 | bacterio-opsin activator [Haloterrigena d... | CDD | UniProt | Pfam | InterPro |
| BB347_12125 | APX97299 | diguanylate cyclase [Haloterrigena daqing... | CDD | UniProt | Pfam | InterPro |
| BB347_16770 | APX98361 | histidine kinase (plasmid) [Haloterrigena... | CDD | UniProt | Pfam | InterPro |
| BB347_17085 | APX98421 | hypothetical protein BB347_17085 (plasmid... | CDD | UniProt | Pfam | InterPro |

Haloterrigena turkmenica DSM 5511

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Htur_0183 | ADB59084 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Htur_0209 | ADB59110 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_0255 | ADB59156 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_0270 | ADB59171 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Htur_0375 | ADB59275 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Htur_0519 | ADB59417 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_0546 | ADB59444 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Htur_0906 | ADB59801 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_0958 | ADB59852 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| Htur_0970 | ADB59864 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_1021 | ADB59913 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_1080 | ADB59972 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| Htur_1083 | ADB59975 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| Htur_1263 | ADB60153 | histidine kinase [Haloterrigena turkmenica... | CDD | UniProt | Pfam | InterPro |
| Htur_1265 | ADB60155 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Htur_1537 | ADB60423 | putative PAS/PAC sensor protein [Haloterr... | CDD | UniProt | Pfam | InterPro |
| Htur_1725 | ADB60610 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Htur_1881 | ADB60766 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_1974 | ADB60858 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_2049 | ADB60933 | histidine kinase [Haloterrigena turkmenica... | CDD | UniProt | Pfam | InterPro |
| Htur_2215 | ADB61095 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Htur_2280 | ADB61160 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Htur_2292 | ADB61172 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_2359 | ADB61237 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Htur_2509 | ADB61386 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Htur_2519 | ADB61396 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_2594 | ADB61471 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_2774 | ADB61647 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_2820 | ADB61691 | histidine kinase [Haloterrigena turkmenica... | CDD | UniProt | Pfam | InterPro |
| Htur_2827 | ADB61698 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_2907 | ADB61776 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_2911 | ADB61780 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_2936 | ADB61805 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_2998 | ADB61866 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Htur_3059 | ADB61925 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_3150 | ADB62015 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Htur_3223 | ADB62087 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_3424 | ADB62287 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Htur_3436 | ADB62299 | histidine kinase [Haloterrigena turkmenica... | CDD | UniProt | Pfam | InterPro |
| Htur_3488 | ADB62350 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Htur_3658 | ADB62520 | histidine kinase [Haloterrigena turkmenica... | CDD | UniProt | Pfam | InterPro |
| Htur_3966 | ADB62820 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Htur_4049 | ADB62889 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Htur_4329 | ADB63144 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_4970 | ADB63704 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Htur_5232 | ADB63863 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Htur_0362 | ADB59262 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_0517 | ADB59415 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_0524 | ADB59422 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_0708 | ADB59605 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_0749 | ADB59646 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_0960 | ADB59854 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_1247 | ADB60137 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_1743 | ADB60628 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_1954 | ADB60839 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_2026 | ADB60910 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_2120 | ADB61003 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_2303 | ADB61183 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|-----------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Htur_3139 | ADB62004 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_3985 | ADB62834 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_4516 | ADB63324 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_4530 | ADB63335 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_4797 | ADB63567 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_5237 | ADB63868 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| *Htur_4286 | ADB63103 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| Htur_0657 | ADB59554 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_3297 | ADB62161 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Htur_3337 | ADB62201 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Htur_0959 | ADB59853 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| Htur_0917 | ADB59811 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_1264 | ADB60154 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_1538 | ADB60424 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| Htur_2134 | ADB61017 | response regulator receiver protein [Halot... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| Htur_0128 | ADB59029 | Response regulator receiver modulated GAF ... | CDD | UniProt | Pfam | InterPro |
| Htur_0348 | ADB59249 | Response regulator receiver modulated GAF ... | CDD | UniProt | Pfam | InterPro |
| Htur_0709 | ADB59606 | Response regulator receiver modulated GAF ... | CDD | UniProt | Pfam | InterPro |
| Htur_2813 | ADB61685 | putative PAS/PAC sensor protein [Haloterri... | CDD | UniProt | Pfam | InterPro |

Halovivax ruber XH-70

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halru_0043 | AGB14697 | PAS domain S-box [Halovivax ruber XH-70] ... | CDD | UniProt | Pfam | InterPro |
| Halru_0110 | AGB14762 | signal transduction histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro |
| Halru_0140 | AGB14792 | PAS domain S-box [Halovivax ruber XH-70] ... | CDD | UniProt | Pfam | InterPro |
| Halru_0212 | AGB14858 | signal transduction histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro |
| Halru_0313 | AGB14957 | PAS domain S-box [Halovivax ruber XH-70] ... | CDD | UniProt | Pfam | InterPro |
| Halru_0412 | AGB15055 | PAS domain S-box [Halovivax ruber XH-70] ... | CDD | UniProt | Pfam | InterPro |
| Halru_0509 | AGB15144 | signal transduction histidine kinase [Halo... | CDD | UniProt | Pfam | InterPro |
| Halru_0510 | AGB15145 | PAS domain S-box [Halovivax ruber XH-70] ... | CDD | UniProt | Pfam | InterPro |
| Halru_0750 | AGB15377 | bacteriophytochrome (light-regulated signa... | CDD | UniProt | Pfam | InterPro |
| Halru_0813 | AGB15439 | PAS domain S-box [Halovivax ruber XH-70] ... | CDD | UniProt | Pfam | InterPro |
| Halru_1039 | AGB15657 | histidine kinase [Halovivax ruber XH-70] ... | CDD | UniProt | Pfam | InterPro |
| Halru_1142 | AGB15759 | PAS domain S-box [Halovivax ruber XH-70] ... | CDD | UniProt | Pfam | InterPro |
| Halru_1267 | AGB15881 | histidine kinase with PAS domain [Haloviva... | CDD | UniProt | Pfam | InterPro |
| Halru_1286 | AGB15900 | chemotaxis protein histidine kinase-like p... | CDD | UniProt | Pfam | InterPro |
| Halru_2424 | AGB17006 | PAS domain S-box [Halovivax ruber XH-70] ... | CDD | UniProt | Pfam | InterPro |
| Halru_2446 | AGB17028 | PAS domain S-box [Halovivax ruber XH-70] ... | CDD | UniProt | Pfam | InterPro |
| Halru_2589 | AGB17170 | PAS domain S-box [Halovivax ruber XH-70] ... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halru_1284 | AGB15898 | response regulator containing CheY-like re... | CDD | UniProt | Pfam | InterPro |
| Halru_2111 | AGB16702 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| Halru_0583 | AGB15216 | PAS domain S-box [Halovivax ruber XH-70].... | CDD | UniProt | Pfam | InterPro |
| Halru_2261 | AGB16847 | PAS domain S-box [Halovivax ruber XH-70].... | CDD | UniProt | Pfam | InterPro |
| Halru_2318 | AGB16903 | PAS domain S-box [Halovivax ruber XH-70].... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halru_1285 | AGB15899 | chemotaxis response regulator containing a... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|

REC-HalX

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halru_1141 | AGB15758 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Halru_1332 | AGB15945 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Halru_0139 | AGB14791 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |

BAT

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halru_0454 | AGB15092 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|

halophilic archaeon DL31

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halar_0348 | AENO7604 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halar_0535 | AENO7772 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halar_1252 | AENO5001 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halar_1860 | AENO5570 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Halar_1910 | AENO5619 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halar_2090 | AENO5774 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Halar_2135 | AENO5817 | histidine kinase [halophilic archaeon DL31... | CDD | UniProt | Pfam | InterPro |
| Halar_2293 | AENO5965 | histidine kinase [halophilic archaeon DL31... | CDD | UniProt | Pfam | InterPro |
| Halar_2384 | AENO6047 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Halar_2680 | AENO6325 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halar_2797 | AENO6432 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halar_3242 | AENO6855 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halar_3393 | AENO6996 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Halar_0350 | AENO7606 | response regulator receiver protein (plasm... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|

REC-HisK

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Halar_0299 | AENO7558 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halar_1537 | AENO5269 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Halar_3160 | AENO6776 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| Halar_1479 | AENO5212 | response regulator receiver protein [halop... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| Halar_2454 | AENO6108 | putative PAS/PAC sensor protein [halophili... | CDD | UniProt | Pfam | InterPro |

[Methanobacterium congolense isolate Buetzberg](#)

HisK, no REC

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MCBB_0068 | SCG84656 | putative sensor histidine kinase pdtaS [Me... | CDD | UniProt | Pfam | InterPro |
| MCBB_0614 | SCG85187 | putative sensor histidine kinase pdtaS [Me... | CDD | UniProt | Pfam | InterPro |
| MCBB_0628 | SCG85201 | Signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| MCBB_0815 | SCG85380 | putative sensor histidine kinase pdtaS [Me... | CDD | UniProt | Pfam | InterPro |
| MCBB_1261 | SCG85819 | putative sensor histidine kinase pdtaS [Me... | CDD | UniProt | Pfam | InterPro |
| MCBB_1296 | SCG85854 | Methyl sulfide methyltransferase-associate... | CDD | UniProt | Pfam | InterPro |
| MCBB_1518 | SCG86073 | putative sensor histidine kinase pdtaS [Me... | CDD | UniProt | Pfam | InterPro |
| MCBB_1772 | SCG86323 | putative sensor histidine kinase pdtaS [Me... | CDD | UniProt | Pfam | InterPro |
| MCBB_1872 | SCG86421 | putative sensor histidine kinase pdtaS [Me... | CDD | UniProt | Pfam | InterPro |
| MCBB_2314 | SCG86852 | putative sensor histidine kinase pdtaS [Me... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MCBB_1548 | SCG86103 | putative histidine kinase 1 [Methanobacter... | CDD | UniProt | Pfam | InterPro |
| MCBB_1688 | SCG86243 | Phyllosphere-induced regulator PhyR [Metha... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MCBB_0649 | SCG85222 | putative sensor histidine kinase pdtaS [Me... | CDD | UniProt | Pfam | InterPro |
| MCBB_0916 | SCG85476 | Signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| MCBB_2021 | SCG86569 | putative transcriptional regulatory protei... | CDD | UniProt | Pfam | InterPro |
| MCBB_2060 | SCG86603 | putative sensor histidine kinase pdtaS [Me... | CDD | UniProt | Pfam | InterPro |

REC-PAS

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MCBB_0027 | SCG84616 | putative transcriptional regulatory protei... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-MetOD1

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------------|
| MCBB_1096 | SCG85655 | putative transcriptional regulatory protei... | CDD | UniProt | Pfam | InterPro | (REC-PAS-MetOD1) |
| MCBB_1432 | SCG85988 | putative transcriptional regulatory protei... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |

[Methanobacterium formicicum BRM9](#)

HisK, no REC

| | | | | | | |
|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| BRM9_0417 | AIS31244 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| BRM9_0432 | AIS31257 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_0435 | AIS31260 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_0748 | AIS31568 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| BRM9_0978 | AIS31795 | two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| BRM9_1002 | AIS31818 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1005 | AIS31821 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1036 | AIS31852 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1139 | AIS31955 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1209 | AIS32024 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1224 | AIS32039 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1237 | AIS32052 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1350 | AIS32165 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| BRM9_1404 | AIS32218 | two component system histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| BRM9_1491 | AIS32305 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1636 | AIS32448 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| BRM9_1659 | AIS32471 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1746 | AIS32556 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1755 | AIS32565 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1925 | AIS32729 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_1948 | AIS32752 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| BRM9_2038 | AIS32840 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| BRM9_2109 | AIS32911 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| BRM9_0637 | AIS31460 | response regulator domain containing prote... | CDD | UniProt | Pfam | InterPro |
| BRM9_0976 | AIS31793 | response regulator domain-containing prote... | CDD | UniProt | Pfam | InterPro |
| BRM9_1035 | AIS31851 | response regulator domain-containing prote... | CDD | UniProt | Pfam | InterPro |
| BRM9_1148 | AIS31964 | response regulator domain-containing prote... | CDD | UniProt | Pfam | InterPro |
| BRM9_1234 | AIS32049 | response regulator domain-containing prote... | CDD | UniProt | Pfam | InterPro |
| BRM9_1405 | AIS32219 | two component system response regulator [M... | CDD | UniProt | Pfam | InterPro |
| BRM9_1846 | AIS32654 | response regulator domain-containing prote... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| BRM9_0252 | AIS31081 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_0860 | AIS31677 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_0975 | AIS31792 | two component system histidine kinase/resp... | CDD | UniProt | Pfam | InterPro |
| BRM9_1144 | AIS31960 | histidine kinase/GAF/PAS domain-containin ... | CDD | UniProt | Pfam | InterPro |
| BRM9_1406 | AIS32220 | histidine kinase/PAS domain-containing pro... | CDD | UniProt | Pfam | InterPro |
| BRM9_2138 | AIS32940 | histidine kinase/response regulator hybrid... | CDD | UniProt | Pfam | InterPro |
| *BRM9_0748 | AIS31568 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |

REC-PAS

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| BRM9_0068 | AIS30901 | response regulator/PAS domain-containing p... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

| | | | | | | | |
|--------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------------|
| BRM9_0069 | AIS30902 | response regulator/PAS domain-containing p... | CDD | UniProt | Pfam | InterPro | |
| BRM9_0349 | AIS31176 | response regulator/PAS domain-containing p... | CDD | UniProt | Pfam | InterPro | |
| BRM9_0433 | AIS31258 | PAS domain-containing protein [Methanobact... | CDD | UniProt | Pfam | InterPro | |
| BRM9_0977 | AIS31794 | two component system response regulator [M... | CDD | UniProt | Pfam | InterPro | |
| BRM9_1034 | AIS31850 | response regulator/PAS domain-containing p... | CDD | UniProt | Pfam | InterPro | |
| BRM9_1049 | AIS31865 | PAS domain-containing protein [Methanobact... | CDD | UniProt | Pfam | InterPro | |
| BRM9_1233 | AIS32048 | response regulator/PAS domain-containing p... | CDD | UniProt | Pfam | InterPro | |
| BRM9_1414 | AIS32228 | PAS domain-containing protein [Methanobact... | CDD | UniProt | Pfam | InterPro | |
| REC-GAF-PAS | | | | | | | |
| BRM9_1144 | AIS31960 | histidine kinase/GAF/PAS domain-containing... | CDD | UniProt | Pfam | InterPro | |
| REC-BcsA | | | | | | | |
| BRM9_1475 | AIS32289 | glycosyl transferase GT2 family with respo... | CDD | UniProt | Pfam | InterPro | (REC-BcsA) |
| REC-MetOD1 | | | | | | | |
| BRM9_1223 | AIS32038 | response regulator domain-containing prote... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |
| BRM9_1398 | AIS32213 | response regulator/PAS domain-containing p... | CDD | UniProt | Pfam | InterPro | (REC-PAS-MetOD1) |
| BRM9_1407 | AIS32221 | response regulator domain-containing prote... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |

Methanobacterium lacus AL-21

HisK, no REC

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Metbo_0409 | ADZ08661 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_0448 | ADZ08700 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_0507 | ADZ08759 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_0937 | ADZ09184 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1039 | ADZ09286 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1049 | ADZ09296 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1102 | ADZ09347 | histidine kinase [Methanobacterium lacus] ... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1235 | ADZ09477 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1328 | ADZ09569 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1329 | ADZ09570 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1353 | ADZ09593 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1417 | ADZ09656 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1430 | ADZ09668 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1445 | ADZ09683 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1514 | ADZ09745 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1550 | ADZ09778 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1593 | ADZ09820 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1622 | ADZ09849 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1624 | ADZ09851 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1625 | ADZ09852 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1666 | ADZ09892 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1676 | ADZ09902 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1775 | ADZ09998 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1783 | ADZ10005 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1823 | ADZ10045 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1846 | ADZ10068 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1865 | ADZ10086 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_2284 | ADZ10498 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Metbo_2320 | ADZ10534 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |

REC only

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Metbo_1044 | ADZ09291 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1079 | ADZ09324 | response regulator receiver [Methanobacter... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1223 | ADZ09465 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1236 | ADZ09478 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1101 | ADZ09346 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1592 | ADZ09819 | response regulator receiver [Methanobacter... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1635 | ADZ09861 | hypothetical protein Metbo_1635 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1742 | ADZ09965 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |

REC-HisK

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Metbo_0326 | ADZ08578 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_0757 | ADZ09008 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1100 | ADZ09345 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1412 | ADZ09651 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1429 | ADZ09667 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1591 | ADZ09818 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1755 | ADZ09978 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1895 | ADZ10115 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1896 | ADZ10116 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |

REC-PAS

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Metbo_0064 | ADZ08317 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| Metbo_0065 | ADZ08318 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1237 | ADZ09479 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1351 | ADZ09591 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1352 | ADZ09592 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1828 | ADZ10050 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| Metbo_1872 | ADZ10093 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| Metbo_2061 | ADZ10280 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| Metbo_2319 | ADZ10533 | PAS sensor protein [Methanobacterium lacus... | CDD | UniProt | Pfam | InterPro | |

REC-BcsA

| | | | | | | | |
|-------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------------|
| Metbo_0838 | ADZ09088 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-BcsA) |
| REC-MetOD1 | | | | | | | |
| Metbo_0747 | ADZ08998 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |
| Metbo_1099 | ADZ09344 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |
| Metbo_1144 | ADZ09388 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | (REC-PAS-MetOD1) |
| Other RRs | | | | | | | |
| Metbo_1354 | ADZ09594 | response regulator receiver [Methanobacter... | CDD | UniProt | Pfam | InterPro | (REC-Smc) |
| Metbo_1869 | ADZ10090 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD4) |
| Metbo_1895 | ADZ10115 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | (REC-HisK-PAS) |

Methanobacterium paludis SWAN1

HisK, no REC

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MSWAN_0174 | AEG17220 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_0184 | AEG17230 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_0338 | AEG17382 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_1140 | AEG18158 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_1308 | AEG18325 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_1334 | AEG18349 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_1380 | AEG18394 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_1544 | AEG18558 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_1581 | AEG18594 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_1892 | AEG18901 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |

REC only

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MSWAN_0629 | AEG17665 | response regulator receiver [Methanobacter... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_0852 | AEG17879 | response regulator receiver [Methanobacter... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_1141 | AEG18159 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| MSWAN_1161 | AEG18179 | response regulator receiver [Methanobacter... | CDD | UniProt | Pfam | InterPro | |

REC-PAS

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MSWAN_0023 | AEG17071 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

REC-MetOD1

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------------|
| MSWAN_1059 | AEG18080 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | (REC-PAS-MetOD1) |
| MSWAN_1497 | AEG18511 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |

Methanobacterium sp. MB1

HisK, no REC

| | | | | | | | |
|-------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| *MBMB1_0321 | CDG64431 | hypothetical protein MBMB1_0321 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0322 | CDG64432 | hypothetical protein MBMB1_0322 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0533 | CDG64640 | hypothetical protein MBMB1_0533 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0598 | CDG64705 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0705 | CDG64809 | hypothetical protein MBMB1_0705 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0843 | CDG64946 | hypothetical protein MBMB1_0843 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0850 | CDG64953 | hypothetical protein MBMB1_0850 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0873 | CDG64975 | hypothetical protein MBMB1_0873 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0981 | CDG65083 | hypothetical protein MBMB1_0981 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_1027 | CDG65128 | hypothetical protein MBMB1_1027 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_1035 | CDG65136 | hypothetical protein MBMB1_1035 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_1140 | CDG65241 | hypothetical protein MBMB1_1140 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_1198 | CDG65298 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_1523 | CDG65617 | hypothetical protein MBMB1_1523 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_1793 | CDG65872 | hypothetical protein MBMB1_1793 [Methanoba... | CDD | UniProt | Pfam | InterPro | |

REC only

| | | | | | | | |
|-------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MBMB1_0017 | CDG64137 | hypothetical protein MBMB1_0017 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0416 | CDG64526 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0721 | CDG64825 | hypothetical protein MBMB1_0721 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0849 | CDG64952 | hypothetical protein MBMB1_0849 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0872 | CDG64974 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_1199 | CDG65299 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_1401 | CDG65499 | hypothetical protein MBMB1_1401 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| *MBMB1_1402 | CDG65500 | hypothetical protein MBMB1_1402 [Methanoba... | CDD | UniProt | Pfam | InterPro | |

REC-HisK

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MBMB1_0158 | CDG64277 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0726 | CDG64830 | hypothetical protein MBMB1_0726 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_1200 | CDG65300 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_2041 | CDG66115 | hypothetical protein MBMB1_2041 [Methanoba... | CDD | UniProt | Pfam | InterPro | |

REC-PAS

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MBMB1_0016 | CDG64136 | PAS/PAC sensor protein [Methanobacterium s... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_0871 | CDG64973 | putative PAS/PAC sensor protein [Methanoba... | CDD | UniProt | Pfam | InterPro | |
| MBMB1_1794 | CDG65873 | hypothetical protein MBMB1_1794 [Methanoba... | CDD | UniProt | Pfam | InterPro | |

REC-BcsA

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------|
| MBMB1_0720 | CDG64824 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro | (REC-BcsA) |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------|

REC-GAF-PAS

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MBMB1_0980 | CDG65082 | hypothetical protein MBMB1_0980 [Methanoba... | CDD | UniProt | Pfam | InterPro | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

REC-MetOD1

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------------|
| MBMB1_1193 | CDG65293 | PAS/PAC sensor protein [Methanobacterium s... | CDD | UniProt | Pfam | InterPro | (REC-PAS-MetOD1) |
| MBMB1_1201 | CDG65301 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |

Methanobrevibacter millerae

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|-------------------------------------|
| sm9_0230 | ALT68035 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| sm9_1617 | ALT69385 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| sm9_1618 | ALT69386 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| sm9_1619 | ALT69387 | response regulator receiver domain-contain... | CDD | UniProt | Pfam | InterPro |
| REC-BcsA | | | | | | |
| sm9_1620 | ALT69388 | glycosyl transferase GT2 family with respo... | CDD | UniProt | Pfam | InterPro (REC-BcsA) |

Methanobrevibacter sp. AbM4

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|-------------------------------------|
| Abm4_0570 | AGN16467 | two-component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Abm4_0571 | AGN16468 | two-component system response regulator [M... | CDD | UniProt | Pfam | InterPro |
| Abm4_0572 | AGN16469 | response regulator domain-containing prote... | CDD | UniProt | Pfam | InterPro |
| REC-BcsA | | | | | | |
| Abm4_0589 | AGN16484 | response regulator/glycosyl transferase GT... | CDD | UniProt | Pfam | InterPro (REC-BcsA) |
| Abm4_0573 | AGN16470 | response regulator/glycosyl transferase GT... | CDD | UniProt | Pfam | InterPro (REC-BcsA) |

Methanocaldococcus bathoardescens

HisK, no REC

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|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| JH146_0930 | AIJ05775 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| JH146_0940 | AIJ05785 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| JH146_0932 | AIJ05777 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro |

Methanocaldococcus fervens AG86

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Mefer_0640 | ACV24459 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| Mefer_0648 | ACV24467 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Mefer_0647 | ACV24466 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Mefer_1110 | ACV24921 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Mefer_0641 | ACV24460 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro |

Methanocaldococcus infernus ME

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metin_0774 | ADG13440 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Metin_0247 | ADG12917 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Metin_0773 | ADG13439 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |

Methanocaldococcus sp. FS406-22

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| MFS40622_0241 | ADC68937 | integral membrane sensor signal transdu... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| MFS40622_0242 | ADC68938 | response regulator receiver protein [Me... | CDD | UniProt | Pfam | InterPro |

Methanocaldococcus vulcanius M7

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metvu_0258 | ACX72125 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Metvu_1497 | ACX73350 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Metvu_0257 | ACX72124 | chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro |

Methanocella arvoryzae MRE50

HisK, no REC

| | | | | | | |
|--------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| LRC113 | CAJ35133 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| LRC120 | CAJ35139 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| LRC135 | CAJ35150 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| LRC318 | CAJ35292 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| LRC339 | CAJ35311 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| LRC393 | CAJ35355 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| LRC522 | CAJ35461 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| LRC571 | CAJ35501 | chemotaxis histidine kinase [Methanocella ... | CDD | UniProt | Pfam | InterPro |
| LRC596 | CAJ35520 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| RCIX2 | CAJ35524 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|--------------------|--------------------------|--|---------------------|-------------------------|----------------------|--|
| RCIX121 | CAJ35620 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| RCIX156 | CAJ35647 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| RCIX160 | CAJ35650 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| RCIX170 | CAJ35658 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| RCIX420 | CAJ35860 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| RCIX484 | CAJ35913 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX485 | CAJ35914 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX512 | CAJ35938 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX604 | CAJ36011 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX850 | CAJ36211 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX980 | CAJ36316 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX1081 | CAJ36399 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| RCIX1082 | CAJ36400 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX1084 | CAJ36401 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX1160 | CAJ36480 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX1237 | CAJ36539 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX1277 | CAJ36574 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| RCIX1290 | CAJ36583 | predicted signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| RCIX1688 | CAJ36909 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX1713 | CAJ36932 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX1753 | CAJ36961 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX1976 | CAJ37138 | signal transduction serine/threonine kinas... | CDD | UniProt | Pfam | InterPro |
| RCIX2013 | CAJ37166 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX2191 | CAJ37312 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX2208 | CAJ37327 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX2210 | CAJ37329 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RCIX2211 | CAJ37330 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RRC13 | CAJ37807 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RRC48 | CAJ37831 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RRC186 | CAJ37936 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RRC192 | CAJ37939 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RRC193 | CAJ37940 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RRC194 | CAJ37941 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| RRC287 | CAJ38021 | predicted signal transduction receptor [Me... | CDD | UniProt | Pfam | InterPro |
| RRC477 | CAJ38171 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| LRC569 | CAJ35499 | chemotaxis response regulator [Methanocell... | CDD | UniProt | Pfam | InterPro |
| LRC597 | CAJ35521 | hypothetical protein LRC597 [Methanocella ... | CDD | UniProt | Pfam | InterPro |
| RRC476 | CAJ38170 | putative response regulator (CheY-like) [M... | CDD | UniProt | Pfam | InterPro |
| RRC490 | CAJ38182 | two-component system response regulator [M... | CDD | UniProt | Pfam | InterPro |
| RCIX443 | CAJ35876 | putative response regulator (CheY-like) [M... | CDD | UniProt | Pfam | InterPro |
| RCIX1840 | CAJ37025 | putative response regulator (CheY-like) [M... | CDD | UniProt | Pfam | InterPro |
| RCIX2162 | CAJ37286 | putative response regulator (CheY-like) [M... | CDD | UniProt | Pfam | InterPro |
| RCIX2509 | CAJ37575 | predicted response regulator [Methanocella... | CDD | UniProt | Pfam | InterPro |
| RCIX2510 | CAJ37576 | predicted response regulator [Methanocella... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| LRC570 | CAJ35500 | chemotaxis methyltransferase [Methanocella ar... | CDD | UniProt | Pfam | InterPro |
| REC-PAS/GAF | | | | | | |
| RRC407 | CAJ38113 | putative signal transduction protein [Meth... | CDD | UniProt | Pfam | InterPro |
| Other RRs | | | | | | |
| RCIX981 | CAJ36317 | putative signal transduction protein [Meth... | CDD | UniProt | Pfam | InterPro (REC-PAS-GAF- |
| DUF835) | | | | | | |
| RCIX1890 | CAJ37065 | putative response regulator [Methanocella ... | CDD | UniProt | Pfam | InterPro (REC-MetOD2) |
| RCIX2113 | CAJ37246 | putative signal transduction protein [Meth... | CDD | UniProt | Pfam | InterPro (REC-PAS-GAF- |
| DUF835) | | | | | | |

Methanocella conradii HZ254

HisK, no REC

| | | | | | | |
|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Mtc_0427 | AFC99194 | putative PAS sensor signal transduction hi... | CDD | UniProt | Pfam | InterPro |
| Mtc_0845 | AFC99606 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| Mtc_1041 | AFC99797 | Putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| Mtc_1115 | AFC99871 | Putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| Mtc_1316 | AFD00070 | putative PAS sensor signal transduction hi... | CDD | UniProt | Pfam | InterPro |
| Mtc_1320 | AFD00074 | putative PAS sensor signal transduction hi... | CDD | UniProt | Pfam | InterPro |
| Mtc_1498 | AFD00250 | Putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| Mtc_1573 | AFD00325 | putative PAS sensor signal transduction hi... | CDD | UniProt | Pfam | InterPro |
| Mtc_1616 | AFD00366 | Putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| Mtc_1630 | AFD00379 | putative PAS sensor signal transduction hi... | CDD | UniProt | Pfam | InterPro |
| Mtc_1919 | AFD00659 | Putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| Mtc_1951 | AFD00691 | putative PAS sensor signal transduction hi... | CDD | UniProt | Pfam | InterPro |
| Mtc_2005 | AFD00745 | putative PAS sensor signal transduction hi... | CDD | UniProt | Pfam | InterPro |
| Mtc_2045 | AFD00784 | Putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| Mtc_2055 | AFD00794 | putative PAS sensor signal transduction hi... | CDD | UniProt | Pfam | InterPro |
| Mtc_2109 | AFD00847 | putative PAS sensor signal transduction hi... | CDD | UniProt | Pfam | InterPro |
| Mtc_2288 | AFD01023 | Putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro |
| Mtc_2385 | AFD01116 | putative PAS sensor signal transduction hi... | CDD | UniProt | Pfam | InterPro |
| Mtc_2386 | AFD01117 | putative PAS sensor signal transduction hi... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | | | |
|------------------|--------------------------|--------------------|----------------------------|-----|-------------------------|----------------------|--------------------------|--------------|
| Mtc_0021 | AFC98796 | Response regulator | [Methanocella conradii ... | CDD | UniProt | Pfam | InterPro | |
| Mtc_0391 | AFC99161 | Response regulator | [Methanocella conradii ... | CDD | UniProt | Pfam | InterPro | |
| Mtc_0429 | AFC99196 | Response regulator | [Methanocella conradii ... | CDD | UniProt | Pfam | InterPro | |
| Mtc_0831 | AFC99592 | Response regulator | [Methanocella conradii ... | CDD | UniProt | Pfam | InterPro | |
| Mtc_1156 | AFC99912 | Response regulator | [Methanocella conradii ... | CDD | UniProt | Pfam | InterPro | |
| Mtc_1960 | AFD00700 | Response regulator | [Methanocella conradii ... | CDD | UniProt | Pfam | InterPro | |
| Mtc_2141 | AFD00879 | Response regulator | [Methanocella conradii ... | CDD | UniProt | Pfam | InterPro | |
| Mtc_2363 | AFD01096 | Response regulator | [Methanocella conradii ... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | | |
| Mtc_0800 | AFC99561 | Response regulator | [Methanocella conradii ... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |

Methanocella paludicola SANAE

HisK, no REC

| | | | | | | | | |
|----------|--------------------------|---------------------------|---------------------|-----|-------------------------|----------------------|--------------------------|--|
| MCP_0034 | BAI60106 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_0052 | BAI60124 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_0054 | BAI60126 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_0354 | BAI60426 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_0357 | BAI60429 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_0535 | BAI60607 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_0536 | BAI60608 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_0578 | BAI60650 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_0602 | BAI60674 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_0751 | BAI60823 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_0753 | BAI60825 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_0834 | BAI60906 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1032 | BAI61104 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1179 | BAI61251 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1198 | BAI61270 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1286 | BAI61358 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1287 | BAI61359 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1288 | BAI61360 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1307 | BAI61379 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1342 | BAI61414 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1350 | BAI61422 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1351 | BAI61423 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1387 | BAI61459 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1388 | BAI61460 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1413 | BAI61485 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1426 | BAI61498 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1443 | BAI61515 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1543 | BAI61615 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1544 | BAI61616 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1546 | BAI61618 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1547 | BAI61619 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1614 | BAI61686 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1615 | BAI61687 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1624 | BAI61696 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1665 | BAI61737 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1757 | BAI61829 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1783 | BAI61855 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1809 | BAI61881 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1856 | BAI61928 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1858 | BAI61930 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_1908 | BAI61980 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_2068 | BAI62140 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_2192 | BAI62264 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_2193 | BAI62265 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_2197 | BAI62269 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_2198 | BAI62270 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_2199 | BAI62271 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_2202 | BAI62274 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_2254 | BAI62326 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_2616 | BAI62688 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |
| MCP_2784 | BAI62856 | putative histidine kinase | [Methanocella pa... | CDD | UniProt | Pfam | InterPro | |

REC only

| | | | | | | | | |
|-----------|--------------------------|-----------------------------|-------------------|-----|-------------------------|----------------------|--------------------------|--|
| MCP_1156 | BAI61228 | putative response regulator | [Methanocella ... | CDD | UniProt | Pfam | InterPro | |
| MCP_1545 | BAI61617 | putative response regulator | [Methanocella ... | CDD | UniProt | Pfam | InterPro | |
| MCP_1650 | BAI61722 | putative response regulator | [Methanocella ... | CDD | UniProt | Pfam | InterPro | |
| MCP_1750 | BAI61822 | putative response regulator | [Methanocella ... | CDD | UniProt | Pfam | InterPro | |
| MCP_2023 | BAI62095 | putative response regulator | [Methanocella ... | CDD | UniProt | Pfam | InterPro | |
| MCP_2581 | BAI62653 | putative response regulator | [Methanocella ... | CDD | UniProt | Pfam | InterPro | |
| *MCP_2605 | BAI62677 | putative response regulator | [Methanocella ... | CDD | UniProt | Pfam | InterPro | |

REC-HisK

| | | | | | | | | |
|------------------|--------------------------|--------------------------------------|-------------------|-----|-------------------------|----------------------|--------------------------|--------------|
| MCP_2132 | BAI62204 | putative hybrid sensor and regulator | [Meth... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | | |
| MCP_0475 | BAI60547 | putative response regulator | [Methanocella ... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |

Methanococcoides burtonii DSM 6242

HisK, no REC

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Mbur_0083 | ABE51103 | HATPase domain-containing multisensor sign... | CDD | UniProt | Pfam | InterPro |
| Mbur_0262 | ABE51269 | PAS sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| Mbur_0312 | ABE51314 | Signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mbur_0361 | ABE51356 | Chemotaxis protein CheA [Methanococcoides ... | CDD | UniProt | Pfam | InterPro |
| Mbur_0380 | ABE51375 | Histidine kinase domain protein [Methanoco... | CDD | UniProt | Pfam | InterPro |
| Mbur_0400 | ABE51392 | Signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mbur_0510 | ABE51492 | HATPase domain-containing external sensor ... | CDD | UniProt | Pfam | InterPro |
| Mbur_0639 | ABE51610 | pleC (non-motile and phage-resistance prot... | CDD | UniProt | Pfam | InterPro |
| Mbur_0694 | ABE51659 | Signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mbur_0768 | ABE51727 | pleC-like signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| Mbur_0820 | ABE51775 | pleC (Non-motile and phage-resistance prot... | CDD | UniProt | Pfam | InterPro |
| Mbur_0842 | ABE51795 | Multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro |
| Mbur_0913 | ABE51858 | GAF-containing Multisensor signal transduc... | CDD | UniProt | Pfam | InterPro |
| Mbur_0950 | ABE51892 | fixL-like, HATPase domain-containing PAS s... | CDD | UniProt | Pfam | InterPro |
| Mbur_0955 | ABE51897 | Multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro |
| Mbur_0958 | ABE51900 | ATP-binding region, ATPase-like protein [M... | CDD | UniProt | Pfam | InterPro |
| Mbur_1023 | ABE51958 | signal transduction histidine kinase, with... | CDD | UniProt | Pfam | InterPro |
| Mbur_1024 | ABE51959 | HATPase domain-containing multisensor sign... | CDD | UniProt | Pfam | InterPro |
| Mbur_1166 | ABE52089 | pleC-like multisensor signal transduction ... | CDD | UniProt | Pfam | InterPro |
| Mbur_1247 | ABE52169 | Multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro |
| Mbur_1264 | ABE52185 | Sensor protein yyG-like multisensor signal... | CDD | UniProt | Pfam | InterPro |
| Mbur_2119 | ABE52992 | HATPase domain-containing multisensor sign... | CDD | UniProt | Pfam | InterPro |
| Mbur_2120 | ABE52993 | bvgS precursor-like multisensor signal tra... | CDD | UniProt | Pfam | InterPro |
| Mbur_2201 | ABE53066 | Multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro |
| Mbur_2286 | ABE53146 | Multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro |
| Mbur_2403 | ABE53254 | luxQ-like PAS sensor signal transduction h... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Mbur_0359 | ABE51354 | CheY like protein [Methanococcoides burton... | CDD | UniProt | Pfam | InterPro |
| Mbur_0834 | ABE51788 | response regulator receiver domain [Methan... | CDD | UniProt | Pfam | InterPro |
| Mbur_0841 | ABE51794 | response regulator receiver domain [Methan... | CDD | UniProt | Pfam | InterPro |
| Mbur_1557 | ABE52463 | response regulator receiver domain [Methan... | CDD | UniProt | Pfam | InterPro |
| Mbur_2107 | ABE52981 | response regulator receiver domain [Methan... | CDD | UniProt | Pfam | InterPro |
| Mbur_2285 | ABE53145 | response regulator receiver domain [Methan... | CDD | UniProt | Pfam | InterPro |
| Mbur_2294 | ABE53151 | response regulator receiver domain [Methan... | CDD | UniProt | Pfam | InterPro |
| Mbur_2445 | ABE53296 | response regulator receiver domain [Methan... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Mbur_1775 | ABE52664 | multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro |
| Mbur_1899 | ABE52781 | multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro |
| Mbur_2108 | ABE52982 | multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro |
| Mbur_2414 | ABE53265 | multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| Mbur_0360 | ABE51355 | Protein-glutamate methyltransferase CheB [Met... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

REC-PAS

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Mbur_0825 | ABE51779 | response regulator receiver domain-contain... | CDD | UniProt | Pfam | InterPro |
| Mbur_0883 | ABE51832 | response regulator receiver domain-contain... | CDD | UniProt | Pfam | InterPro |

HTH-REC

| | | | | | | |
|-----------|--------------------------|--|-----|-------------------------|----------------------|---------------------------------------|
| Mbur_0695 | ABE51660 | LtrR, low temperature responsive response ... | CDD | UniProt | Pfam | InterPro (HTH_11-REC) |
|-----------|--------------------------|--|-----|-------------------------|----------------------|---------------------------------------|

REC-MetOD1

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|---------------------------------------|
| Mbur_0878 | ABE51827 | response regulator receiver domain-contain... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |
|-----------|--------------------------|---|-----|-------------------------|----------------------|---------------------------------------|

Other RRs

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|-------------------------------------|
| Mbur_2185 | ABE53050 | response regulator receiver domain-contain... | CDD | UniProt | Pfam | InterPro (KaiC-REC) |
|-----------|--------------------------|---|-----|-------------------------|----------------------|-------------------------------------|

Methanococcoides methylutens MM1

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| MCMEM_0377 | AKB84430 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0435 | AKB84488 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0824 | AKB84877 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0922 | AKB84975 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0972 | AKB85025 | hypothetical protein MCMEM_0972 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1047 | AKB85100 | Adenylate cyclase [Methanococcoides methyl... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1159 | AKB85212 | hypothetical protein MCMEM_1159 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1168 | AKB85221 | hypothetical protein MCMEM_1168 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1188 | AKB85241 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1247 | AKB85300 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1299 | AKB85352 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1317 | AKB85370 | hypothetical protein MCMEM_1317 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1411 | AKB85464 | hypothetical protein MCMEM_1411 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1415 | AKB85468 | hypothetical protein MCMEM_1415 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1453 | AKB85506 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1462 | AKB85515 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1504 | AKB85557 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1505 | AKB85558 | hypothetical protein MCMEM_1505 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1624 | AKB85677 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1635 | AKB85688 | hypothetical protein MCMEM_1635 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1950 | AKB86003 | hypothetical protein MCMEM_1950 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| MCMEM_1951 | AKB86004 | hypothetical protein MCMEM_1951 [Methanoco... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|--------------------|--------------------------|---|-----|-------------------------|----------------------|-------------------------------------|
| MCMEM_2043 | AKB86096 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_2044 | AKB86097 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_2046 | AKB86099 | hypothetical protein MCMEM_2046 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| MCMEM_2069 | AKB86122 | hypothetical protein MCMEM_2069 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| Hybrid HisK | | | | | | |
| MCMEM_1707 | AKB85760 | hypothetical protein MCMEM_1707 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| MCMEM_0434 | AKB84487 | response regulator receiver [Methanococci... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0441 | AKB84494 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0964 | AKB85017 | Response regulator receiver [Methanococci... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0971 | AKB85024 | response regulator receiver [Methanococci... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0304 | AKB84357 | Two-component response regulator [Methanoc... | CDD | UniProt | Pfam | InterPro |
| MCMEM_2068 | AKB86121 | response regulator receiver [Methanococci... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0583 | AKB84636 | DNA-binding response regulator KdpE [Metha... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| MCMEM_0032 | AKB84085 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0128 | AKB84181 | Pole remodelling regulatory diguanylate cy... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0305 | AKB84358 | hypothetical protein MCMEM_0305 [Methanoco... | CDD | UniProt | Pfam | InterPro |
| MCMEM_0556 | AKB84609 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| REC-PAS | | | | | | |
| MCMEM_1276 | AKB85329 | response regulator receiver [Methanococci... | CDD | UniProt | Pfam | InterPro |
| HTH-REC | | | | | | |
| MCMEM_1410 | AKB85463 | Phosphate regulon transcriptional regulato... | CDD | UniProt | Pfam | InterPro |
| Other RRs | | | | | | |
| MCMEM_0362 | AKB84415 | Phosphate regulon transcriptional regulato... | CDD | UniProt | Pfam | InterPro (KaiC-REC) |

[Methanococcus aeolicus Nankai-3](#)

HisK, no REC

Maeo_1437 [ABR57013](#) integral membrane sensor signal transducti... CDD [UniProt](#) [Pfam](#) [InterPro](#)

REC only

Maeo_1436 [ABR57012](#) response regulator receiver protein [Metha... CDD [UniProt](#) [Pfam](#) [InterPro](#)

[Methanococcus maripaludis S2](#)

HisK, no REC

MMP0927 [CAF30483](#) Chemotaxis protein CheA [Methanococcus mar... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MMP1120 [CAF30676](#) ATP-binding protein, ATPase-like:Histidine... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MMP1303 [CAF30859](#) Sensory transduction histidine kinase [Met... CDD [UniProt](#) [Pfam](#) [InterPro](#)

REC only

MMP1304 [CAF30860](#) Response regulator receiver [Methanococcus... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MMP0933 [CAF30489](#) chemotaxis protein CheY [Methanococcus mar... CDD [UniProt](#) [Pfam](#) [InterPro](#)

REC-CheB

MMP0926 [CAF30482](#) chemotaxis protein CheB [Methanococcus mar... CDD [UniProt](#) [Pfam](#) [InterPro](#)

[Methanococcus vannielii SB](#)

HisK, no REC

Mevan_0140 [ABR54051](#) integral membrane sensor signal transducti... CDD [UniProt](#) [Pfam](#) [InterPro](#)

Mevan_0142 [ABR54053](#) PAS/PAC sensor signal transduction histidi... CDD [UniProt](#) [Pfam](#) [InterPro](#)

Mevan_0220 [ABR54130](#) CheA signal transduction histidine kinase ... CDD [UniProt](#) [Pfam](#) [InterPro](#)

Mevan_0444 [ABR54351](#) integral membrane sensor signal transducti... CDD [UniProt](#) [Pfam](#) [InterPro](#)

Mevan_0613 [ABR54519](#) integral membrane sensor signal transducti... CDD [UniProt](#) [Pfam](#) [InterPro](#)

REC only

Mevan_0256 [ABR54165](#) response regulator receiver protein [Metha... CDD [UniProt](#) [Pfam](#) [InterPro](#)

Mevan_0614 [ABR54520](#) response regulator receiver protein [Metha... CDD [UniProt](#) [Pfam](#) [InterPro](#)

REC-CheB

Mevan_0219 [ABR54129](#) response regulator receiver modulated CheB... CDD [UniProt](#) [Pfam](#) [InterPro](#)

[Methanococcus voltae A3](#)

HisK, no REC

Mvol_0817 [ADI36476](#) integral membrane sensor signal transducti... CDD [UniProt](#) [Pfam](#) [InterPro](#)

Mvol_0949 [ADI36606](#) CheA signal transduction histidine kinase ... CDD [UniProt](#) [Pfam](#) [InterPro](#)

REC only

Mvol_0816 [ADI36475](#) response regulator receiver protein [Metha... CDD [UniProt](#) [Pfam](#) [InterPro](#)

Mvol_0954 [ADI36611](#) response regulator receiver protein [Metha... CDD [UniProt](#) [Pfam](#) [InterPro](#)

REC-CheB

Mvol_0948 [ADI36605](#) response regulator receiver modulated CheB... CDD [UniProt](#) [Pfam](#) [InterPro](#)

[Methanocorpusculum labreanum Z](#)

HisK, no REC

Mlab_1181 [ABN07350](#) histidine kinase [Methanocorpusculum labre... CDD [UniProt](#) [Pfam](#) [InterPro](#)

Other RRs

Mlab_1182 [ABN07351](#) response regulator receiver protein [Metha... CDD [UniProt](#) [Pfam](#) [InterPro](#) (no hits in archaea)

Methanoculleus bourgensis MS2

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| BN140_0081 | CCJ35004 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| BN140_0242 | CCJ35165 | sensor histidine kinase [Methanoculleus bo... | CDD | UniProt | Pfam | InterPro |
| BN140_0345 | CCJ35268 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| BN140_0614 | CCJ35537 | Signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| BN140_0740 | CCJ35663 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| BN140_1222 | CCJ36145 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| BN140_1315 | CCJ36238 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| BN140_1385 | CCJ36308 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| BN140_1881 | CCJ36804 | two-component system, chemotaxis family, s... | CDD | UniProt | Pfam | InterPro |
| BN140_2059 | CCJ36982 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| BN140_2065 | CCJ36988 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| BN140_2169 | CCJ37092 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| BN140_2482 | CCJ37405 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| BN140_2483 | CCJ37406 | Osmosensitive K+ channel histidine kinase ... | CDD | UniProt | Pfam | InterPro |

HisKA, no HATPase

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| BN140_0148 | CCJ35071 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| BN140_0356 | CCJ35279 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| BN140_2063 | CCJ36986 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| BN140_2404 | CCJ37327 | Signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| BN140_1883 | CCJ36806 | two-component system, chemotaxis family, r... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-HisK

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| BN140_0479 | CCJ35402 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| BN140_0971 | CCJ35894 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| BN140_2006 | CCJ36929 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| BN140_2153 | CCJ37076 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| BN140_1882 | CCJ36805 | two-component system, chemotaxis family, r... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

Other RRs

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|
| BN140_0178 | CCJ35101 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|

Methanoculleus marisnigri JRI

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Memar_0157 | ABN56092 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_0236 | ABN56170 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| Memar_0324 | ABN56257 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_0519 | ABN56452 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Memar_0864 | ABN56797 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_0884 | ABN56817 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Memar_0912 | ABN56845 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Memar_0943 | ABN56876 | CheA signal transduction histidine kinases... | CDD | UniProt | Pfam | InterPro |
| Memar_1136 | ABN57068 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_1347 | ABN57277 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_1351 | ABN57281 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_1434 | ABN57363 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_1528 | ABN57457 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Memar_1707 | ABN57634 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| Memar_1777 | ABN57703 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Memar_1981 | ABN57907 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Memar_2020 | ABN57946 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_2025 | ABN57951 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_2127 | ABN58050 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_2182 | ABN58105 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_2343 | ABN58266 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Memar_2344 | ABN58267 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Memar_2345 | ABN58268 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |

Hybrid HisK

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Memar_0238 | ABN56172 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

HisKA, no HATPase

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Memar_0270 | ABN56204 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| Memar_0421 | ABN56354 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| Memar_1139 | ABN57071 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| Memar_1158 | ABN57089 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| Memar_1348 | ABN57278 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| Memar_1355 | ABN57285 | signal transduction histidine kinase, nitr... | CDD | UniProt | Pfam | InterPro |
| Memar_2294 | ABN58217 | signal transduction histidine kinase, nitr... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Memar_0945 | ABN56878 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Memar_2024 | ABN57950 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Memar_2126 | ABN58049 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Memar_0237 | ABN56171 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Memar_0872 | ABN56805 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_1339 | ABN57269 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Memar_1906 | ABN57832 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|------------------|--------------------------|---|---------------------|-------------------------|----------------------|---------------------------------------|
| Memar_0944 | ABN56877 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Other RRs | | | | | | |
| Memar_0295 | ABN56229 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro (REC-MetOD2) |
| Memar_0309 | ABN56242 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro (REC-MetOD2) |

Methanoculleus sp. MAB1

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MMAB1_0115 | CVK31332 | Multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| MMAB1_0302 | CVK31519 | Sensor histidine kinase ResE [Methanoculle... | CDD | UniProt | Pfam | InterPro |
| MMAB1_0432 | CVK31649 | Multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| MMAB1_0448 | CVK31665 | Putative PAS/PAC sensor protein (fragment)... | CDD | UniProt | Pfam | InterPro |
| MMAB1_0595 | CVK31812 | membrane protein of unknown function [Meth... | CDD | UniProt | Pfam | InterPro |
| MMAB1_0797 | CVK32011 | Aerobic respiration control sensor protein... | CDD | UniProt | Pfam | InterPro |
| MMAB1_0945 | CVK32159 | Sensor protein kdpD [Methanoculleus sp. MA... | CDD | UniProt | Pfam | InterPro |
| MMAB1_1547 | CVK32760 | Multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| MMAB1_1671 | CVK32884 | Alginate biosynthesis sensor protein kinB ... | CDD | UniProt | Pfam | InterPro |
| MMAB1_1773 | CVK32986 | Two-component system protein A [Methanocul... | CDD | UniProt | Pfam | InterPro |
| MMAB1_2418 | CVK33631 | Two-component system, chemotaxis family, s... | CDD | UniProt | Pfam | InterPro |
| MMAB1_2671 | CVK33884 | Sporulation kinase A [Methanoculleus sp. M... | CDD | UniProt | Pfam | InterPro |
| MMAB1_2680 | CVK33893 | Multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| MMAB1_2853 | CVK34066 | Signal transduction histidine-protein kina... | CDD | UniProt | Pfam | InterPro |
| MMAB1_3343 | CVK34556 | Signal transduction histidine-protein kina... | CDD | UniProt | Pfam | InterPro |
| MMAB1_3344 | CVK34557 | Sensor protein kdpD [Methanoculleus sp. MA... | CDD | UniProt | Pfam | InterPro |

HisKA, no HATPase

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MMAB1_0192 | CVK31409 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| MMAB1_2678 | CVK33891 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| MMAB1_2873 | CVK34086 | Sporulation kinase A [Methanoculleus sp. M... | CDD | UniProt | Pfam | InterPro |
| MMAB1_2961 | CVK34174 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |
| MMAB1_3199 | CVK34412 | putative PAS/PAC sensor protein [Methanocu... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MMAB1_2420 | CVK33633 | regulator of chemotaxis and motility [Meth... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-HisK

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MMAB1_2597 | CVK33810 | Sensor protein kdpD [Methanoculleus sp. MA... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-CheB

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MMAB1_2419 | CVK33632 | Chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-PAS

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|------------------------------------|
| MMAB1_2854 | CVK34067 | protein of unknown function [Methanoculleu... | CDD | UniProt | Pfam | InterPro (REC-PAS) |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|------------------------------------|

Other RRs

| | | | | | | |
|------------|--------------------------|--|---------------------|-------------------------|----------------------|---------------------------------------|
| MMAB1_0227 | CVK31444 | Protein pilH [Methanoculleus sp. MAB1] ... | CDD | UniProt | Pfam | InterPro (REC-MetOD2) |
|------------|--------------------------|--|---------------------|-------------------------|----------------------|---------------------------------------|

Methanofollis liminatans DSM 4140

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metli_0189 | EJG06164 | histidine kinase [Methanofollis liminatans... | CDD | UniProt | Pfam | InterPro |
| Metli_0420 | EJG06388 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Metli_0960 | EJG06918 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Metli_1172 | EJG07128 | histidine kinase [Methanofollis liminatans... | CDD | UniProt | Pfam | InterPro |
| Metli_1245 | EJG07201 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| Metli_1399 | EJG07351 | Cache sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metli_1751 | EJG07695 | histidine kinase [Methanofollis liminatans... | CDD | UniProt | Pfam | InterPro |
| Metli_1822 | EJG07766 | histidine kinase [Methanofollis liminatans... | CDD | UniProt | Pfam | InterPro |
| Metli_2158 | EJG08099 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| Metli_2218 | EJG08159 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metli_2328 | EJG08266 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Metli_2453 | EJG08390 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Metli_2464 | EJG08401 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |

Hybrid HisK

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metli_0113 | EJG06091 | PAS/PAC sensor hybrid histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| Metli_1831 | EJG07775 | PAS/PAC sensor hybrid histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| Metli_1888 | EJG07832 | PAS/PAC sensor hybrid histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| Metli_2455 | EJG08392 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |

HisKA, no HATPase

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metli_0101 | EJG06079 | putative PAS/PAC sensor protein [Methanofo... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC only

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metli_0541 | EJG06509 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Metli_1243 | EJG07199 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Metli_1398 | EJG07350 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Metli_2274 | EJG08213 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metli_0125 | EJG06103 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metli_1069 | EJG07026 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metli_1175 | EJG07131 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metli_1388 | EJG07340 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metli_1592 | EJG07540 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metli_2000 | EJG07942 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metli_2114 | EJG08055 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metli_2375 | EJG08313 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metli_2454 | EJG08391 | response regulator receiver sensor signal ... | CDD | UniProt | Pfam | InterPro |

| | | | | | | | |
|--------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|
| REC-CheB | | | | | | | |
| Metli_1244 | EJG07200 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| REC-PAS | | | | | | | |
| Metli_0300 | EJG06272 | putative PAS/PAC sensor protein [Methanofo... | CDD | UniProt | Pfam | InterPro | |
| Metli_1397 | EJG07349 | putative PAS/PAC sensor protein [Methanofo... | CDD | UniProt | Pfam | InterPro | |
| Metli_1585 | EJG07535 | putative PAS/PAC sensor protein [Methanofo... | CDD | UniProt | Pfam | InterPro | |
| Metli_1993 | EJG07935 | putative PAS/PAC sensor protein [Methanofo... | CDD | UniProt | Pfam | InterPro | |
| REC-PAS-GAF | | | | | | | |
| Metli_1723 | EJG07667 | putative PAS/PAC sensor protein [Methanofo... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | |
| Metli_1973 | EJG07916 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |

[methanogenic archaeon ISO4-H5](#)

| | | | | | | | |
|-------------------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------|
| HisKin | | | | | | | |
| AR505_0788 | AMH94509 | signal transduction histidine kinase [meth... | CDD | UniProt | Pfam | InterPro | |
| AR505_0791 | AMH94512 | transcriptional regulator LytS family [met... | CDD | UniProt | Pfam | InterPro | |
| AR505_1170 | AMH94885 | signal transduction histidine kinase [meth... | CDD | UniProt | Pfam | InterPro | |
| OmpR family (REC-wHTH) | | | | | | | |
| AR505_0790 | AMH94511 | transcriptional regulator LytR family [met... | CDD | UniProt | Pfam | InterPro | (REC-wHTH) |

[Methanohalobium evestigatum Z-7303](#)

| | | | | | | | |
|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|
| HisK, no REC | | | | | | | |
| Metev_0371 | ADI73293 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro | |
| Metev_0374 | ADI73296 | histidine kinase [Methanohalobium evestiga... | CDD | UniProt | Pfam | InterPro | |
| Metev_0376 | ADI73298 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Metev_0453 | ADI73368 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metev_0761 | ADI73662 | signal transduction histidine kinase (plas... | CDD | UniProt | Pfam | InterPro | |
| Metev_0867 | ADI73765 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro | |
| Metev_0983 | ADI73874 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metev_1007 | ADI73896 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metev_1009 | ADI73898 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metev_1091 | ADI73975 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metev_1139 | ADI74021 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metev_1140 | ADI74022 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metev_1154 | ADI74035 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Metev_1155 | ADI74036 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metev_1156 | ADI74037 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metev_1164 | ADI74045 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metev_1165 | ADI74046 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metev_1291 | ADI74154 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metev_1454 | ADI74308 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metev_1536 | ADI74386 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Metev_1589 | ADI74434 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metev_1590 | ADI74435 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metev_1701 | ADI74540 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metev_1711 | ADI74550 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Metev_1743 | ADI74581 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metev_1934 | ADI74764 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Metev_2106 | ADI74933 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metev_2266 | ADI75085 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Metev_2315 | ADI75127 | signal transduction histidine kinase (plas... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| Metev_0049 | ADI72981 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Metev_0865 | ADI73763 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Metev_1008 | ADI73897 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Metev_1010 | ADI73899 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Metev_1867 | ADI74700 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Metev_2220 | ADI75046 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Metev_2337 | ADI75149 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| Metev_0866 | ADI73764 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro | |
| REC-MetOD1 | | | | | | | |
| Metev_1159 | ADI74040 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |
| Metev_1574 | ADI74421 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |
| Other RRs | | | | | | | |
| Metev_1321 | ADI74181 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (KaiC-REC) |

[Methanohalophilus halophilus Z-7982](#)

| | | | | | | | |
|---------------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|--|
| HisK, no REC | | | | | | | |
| BHR79_00425 | APH38092 | hypothetical protein BHR79_00425 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_00710 | APH38146 | hypothetical protein BHR79_00710 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_00945 | APH38186 | Two-component sensor histidine kinase, co... | CDD | UniProt | Pfam | InterPro | |
| BHR79_01420 | APH38273 | hypothetical protein BHR79_01420 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_01795 | APH38341 | hypothetical protein BHR79_01795 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_02095 | APH38395 | hypothetical protein BHR79_02095 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_03265 | APH38600 | hypothetical protein BHR79_03265 [Methano... | CDD | UniProt | Pfam | InterPro | |

| | | | | | | | |
|--------------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|------------------|
| BHR79_03370 | APH38620 | hypothetical protein BHR79_03370 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_03665 | APH38671 | hypothetical protein BHR79_03665 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_06215 | APH39117 | histidine kinase [Methanohalophilus halop... | CDD | UniProt | Pfam | InterPro | |
| BHR79_06570 | APH39180 | hypothetical protein BHR79_06570 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_06695 | APH39204 | hypothetical protein BHR79_06695 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_07285 | APH39303 | hypothetical protein BHR79_07285 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_07290 | APH39304 | histidine kinase [Methanohalophilus halop... | CDD | UniProt | Pfam | InterPro | |
| BHR79_07785 | APH39390 | histidine kinase [Methanohalophilus halop... | CDD | UniProt | Pfam | InterPro | |
| BHR79_08165 | APH39458 | C50 carotenoid epsilon cyclase [Methanoha... | CDD | UniProt | Pfam | InterPro | |
| BHR79_08245 | APH39471 | hypothetical protein BHR79_08245 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_08250 | APH39472 | hypothetical protein BHR79_08250 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_08590 | APH39531 | Two-component sensor histidine kinase, co... | CDD | UniProt | Pfam | InterPro | |
| BHR79_08905 | APH39586 | hypothetical protein BHR79_08905 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_09380 | APH39670 | hypothetical protein BHR79_09380 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_09430 | APH39680 | histidine kinase [Methanohalophilus halop... | CDD | UniProt | Pfam | InterPro | |
| BHR79_10040 | APH39782 | hypothetical protein BHR79_10040 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_10050 | APH39783 | hypothetical protein BHR79_10050 [Methano... | CDD | UniProt | Pfam | InterPro | |
| Hybrid HisK | | | | | | | |
| BHR79_02040 | APH38385 | hypothetical protein BHR79_02040 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_07310 | APH39307 | hypothetical protein BHR79_07310 [Methano... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| BHR79_00950 | APH38187 | two-component system response regulator [... | CDD | UniProt | Pfam | InterPro | |
| BHR79_02035 | APH38384 | two-component system response regulator [... | CDD | UniProt | Pfam | InterPro | |
| BHR79_04435 | APH38809 | two-component system response regulator [... | CDD | UniProt | Pfam | InterPro | |
| BHR79_06225 | APH39119 | hypothetical protein BHR79_06225 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_06820 | APH39226 | two-component system response regulator [... | CDD | UniProt | Pfam | InterPro | |
| BHR79_07790 | APH39391 | two-component system response regulator [... | CDD | UniProt | Pfam | InterPro | |
| BHR79_07890 | APH39407 | hypothetical protein BHR79_07890 [Methano... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| BHR79_00325 | APH38076 | hypothetical protein BHR79_00325 [Methano... | CDD | UniProt | Pfam | InterPro | |
| BHR79_03895 | APH38715 | hypothetical protein BHR79_03895 [Methano... | CDD | UniProt | Pfam | InterPro | |
| REC-PAS | | | | | | | |
| BHR79_08490 | APH39513 | response regulator receiver protein [Meth... | CDD | UniProt | Pfam | InterPro | |
| HTH-REC | | | | | | | |
| BHR79_09425 | APH39679 | response regulator receiver protein [Meth... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | |
| BHR79_01660 | APH38317 | response regulator receiver protein [Meth... | CDD | UniProt | Pfam | InterPro | (KaiC-REC) |
| BHR79_08240 | APH39470 | hypothetical protein BHR79_08240 [Methano... | CDD | UniProt | Pfam | InterPro | (REC-PAS-DUF835) |
| BHR79_08465 | APH39508 | response regulator [Methanohalophilus hal... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |

Methanohalophilus mahii DSM 5219

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|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HisK, no REC | | | | | | | |
| Mmah_0019 | ADE35557 | histidine kinase [Methanohalophilus mahii ... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0110 | ADE35646 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0194 | ADE35729 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0285 | ADE35817 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0343 | ADE35875 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0428 | ADE35959 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0432 | ADE35962 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0496 | ADE36024 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0593 | ADE36119 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0821 | ADE36344 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0831 | ADE36354 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0908 | ADE36429 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0912 | ADE36433 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0996 | ADE36515 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1063 | ADE36574 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1151 | ADE36657 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1249 | ADE36753 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1250 | ADE36754 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1394 | ADE36893 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1503 | ADE36999 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1558 | ADE37054 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1998 | ADE37491 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| Mmah_0297 | ADE35829 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mmah_0495 | ADE36023 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1130 | ADE36637 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1150 | ADE36656 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1368 | ADE36867 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1501 | ADE36997 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1843 | ADE37338 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| Mmah_0609 | ADE36134 | multi-sensor signal transduction protein [... | CDD | UniProt | Pfam | InterPro | |
| Mmah_1948 | ADE37443 | multi-sensor signal transduction protein [... | CDD | UniProt | Pfam | InterPro | |
| REC-PAS | | | | | | | |
| Mmah_1016 | ADE36534 | putative PAS/PAC sensor protein [Methanoha... | CDD | UniProt | Pfam | InterPro | |
| WHTH-REC | | | | | | | |

| | | | | | | | |
|-------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|
| Mmah_0822 | ADE36345 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (wHTH-REC) |
| REC-MetOD1 | | | | | | | |
| Mmah_1021 | ADE36539 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |
| Other RRs | | | | | | | |
| Mmah_0369 | ADE35901 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (KaiC-REC) |

Methanolicinia petrolearia DSM 11571

HisK, no REC

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpet_0012 | ADN34793 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0033 | ADN34814 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0077 | ADN34858 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0078 | ADN34859 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0115 | ADN34895 | signal transduction histidine kinase regul... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0121 | ADN34901 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0171 | ADN34949 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0181 | ADN34959 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0299 | ADN35075 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0442 | ADN35216 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0585 | ADN35359 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0596 | ADN35370 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0645 | ADN35419 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0678 | ADN35452 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0829 | ADN35600 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1108 | ADN35874 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1128 | ADN35894 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1138 | ADN35904 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1153 | ADN35919 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1205 | ADN35966 | histidine kinase [Methanolicinia petrolear... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1492 | ADN36250 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1802 | ADN36555 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2066 | ADN36814 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2523 | ADN37267 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2600 | ADN37343 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2671 | ADN37414 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2707 | ADN37450 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2735 | ADN37478 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2799 | ADN37542 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2810 | ADN37553 | histidine kinase [Methanolicinia petrolear... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2819 | ADN37561 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |

Hybrid HisK

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpet_0061 | ADN34842 | multi-sensor hybrid histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

HisKA, no HATPase

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpet_1496 | ADN36253 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1966 | ADN36716 | putative methyl-accepting chemotaxis senso... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1967 | ADN36717 | putative sensor with HAMP domain [Methanol... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1968 | ADN36718 | putative methyl-accepting chemotaxis senso... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2120 | ADN36868 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2690 | ADN37433 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2746 | ADN37489 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | |

REC only

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpet_0013 | ADN34794 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0182 | ADN34960 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0586 | ADN35360 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0594 | ADN35368 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1207 | ADN35968 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2064 | ADN36812 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2121 | ADN36869 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |

REC-HisK

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpet_0180 | ADN34958 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0288 | ADN35065 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0399 | ADN35173 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0602 | ADN35376 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1059 | ADN35826 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1150 | ADN35916 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_1963 | ADN36713 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2338 | ADN37085 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2562 | ADN37306 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2802 | ADN37545 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |

REC-CheB

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpet_2065 | ADN36813 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

REC-PAS

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpet_0059 | ADN34840 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2605 | ADN37348 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | |
| Mpet_0266 | ADN35044 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2524 | ADN37268 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2767 | ADN37510 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | |
| Mpet_2772 | ADN37515 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |

Other RRs

| | | | | | | | |
|-------------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|-------------------|
| Mpet_0172 HisKA) | ADN34950 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | (REC-PAS-PAS- |
| Mpet_0183 | ADN34961 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-PAS-HisKA) |
| Mpet_1022 HisKA) | ADN35789 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | (REC-PAS-PAS- |
| Mpet_1107 PAS-HisKA) | ADN35873 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | (REC-PAS-PAS-GAF- |
| Mpet_1172 PAS-HisKA) | ADN35935 | putative PAS/PAC sensor protein [Methanola... | CDD | UniProt | Pfam | InterPro | (REC-PAS-PAS-GAF- |
| Mpet_1739 | ADN36492 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |

Methanobolus psychrophilus R15

HisK, no REC

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpsy_0054 | AFV22267 | multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_0073 | AFV22286 | multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_0208 | AFV22421 | multi-sensor hybrid histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_0241 | AFV22454 | two-component hybrid sensor and regulator ... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_0354 | AFV22565 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_0363 | AFV22574 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_0517 | AFV22728 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_0812 | AFV23021 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_0825 | AFV23034 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_0872 | AFV23081 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1040 | AFV23249 | hypothetical protein Mpsy_1040 [Methanolob... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1174 | AFV23382 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1192 | AFV23400 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1204 | AFV23412 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1239 | AFV23447 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1251 | AFV23459 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1297 | AFV23505 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1547 | AFV23754 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1696 | AFV23903 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1718 | AFV23925 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1737 | AFV23944 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2042 | AFV24248 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2220 | AFV24424 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2256 | AFV24460 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2598 | AFV24801 | signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2638 | AFV24841 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2783 | AFV24984 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2808 | AFV25009 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2981 | AFV25180 | putative Histidine kinase [Methanobolus ps... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_3073 | AFV25272 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |

Hybrid HisK

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpsy_0031 | AFV22244 | PAS domain protein [Methanobolus psychroph... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_0087 | AFV22300 | multi-sensor hybrid histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1288 | AFV23496 | two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2824 | AFV25023 | multi-sensor hybrid histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2980 | AFV25179 | multi-sensor hybrid histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_3068 | AFV25267 | PAS domain protein [Methanobolus psychroph... | CDD | UniProt | Pfam | InterPro | |

REC only

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpsy_0893 | AFV23102 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1286 | AFV23494 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1697 | AFV23904 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1719 | AFV23926 | response regulator receiver [Methanobolus ... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2043 | AFV24249 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2344 | AFV24548 | response regulator receiver [Methanobolus ... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2600 | AFV24803 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2847 | AFV25046 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |

REC-HisK

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpsy_1340 | AFV23548 | multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_1428 | AFV23636 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2044 | AFV24250 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2480 | AFV24684 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_3013 | AFV25212 | multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro | |

REC-CheB

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpsy_2599 | AFV24802 | chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

REC-PAS

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpsy_0813 | AFV23022 | putative signal transduction protein [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpsy_2721 | AFV24922 | multisensor signal transduction histidine ... | CDD | UniProt | Pfam | InterPro | |

HTH-REC

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpsy_1252 | AFV23460 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

REC-MetOD1

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|
| Mpsy_2767 | AFV24968 | response regulator receiver [Methanobolus ... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|

Other RRs

| | | | | | | | |
|----------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|---------------|
| Mpsy_2343 | AFV24547 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (KaiC-REC) |
| Mpsy_2611 DUF835) | AFV24814 | hypothetical protein Mpsy_2611 [Methanolob... | CDD | UniProt | Pfam | InterPro | (REC-PAS-PAS- |

Methanomethylovorans hollandica DSM 15978**HisK, no REC**

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metho_0017 | AGB48315 | PAS domain S-box [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |
| Metho_0348 | AGB48621 | PAS domain S-box [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |
| Metho_0372 | AGB48645 | PAS domain S-box [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |
| Metho_0391 | AGB48661 | histidine kinase [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |
| Metho_1007 | AGB49246 | PAS domain S-box [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |
| Metho_1008 | AGB49247 | PAS domain S-box [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |
| Metho_1028 | AGB49266 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Metho_1103 | AGB49338 | PAS domain S-box [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |
| Metho_1265 | AGB49493 | PAS domain S-box [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |
| Metho_1298 | AGB49521 | PAS domain S-box [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |
| Metho_1431 | AGB49638 | chemotaxis protein histidine kinase-like p... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metho_0018 | AGB48316 | CheY-like receiver domain-containing prote... | CDD | UniProt | Pfam | InterPro |
| Metho_1029 | AGB49267 | CheY-like receiver domain-containing prote... | CDD | UniProt | Pfam | InterPro |
| Metho_1347 | AGB49565 | response regulator containing a CheY-like ... | CDD | UniProt | Pfam | InterPro |
| Metho_1429 | AGB49636 | chemotaxis response regulator containing a... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metho_0316 | AGB48590 | PAS domain S-box [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |
| Metho_1090 | AGB49325 | PAS domain S-box [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metho_1430 | AGB49637 | chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-PAS

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metho_1877 | AGB50054 | PAS domain S-box [Methanomethylovorans hol... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

Other RRs

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|-------------------------------------|
| Metho_0471 | AGB48738 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro (KaiC-REC) |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|-------------------------------------|

Methanoplanus limicola DSM 2279**HisK, no REC**

| | | | | | | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| Metlim_0040 | EHQ34193 | PAS/PAC sensor signal transduction histid... | CDD | UniProt | Pfam | InterPro |
| Metlim_0344 | EHQ34485 | PAS/PAC sensor signal transduction histid... | CDD | UniProt | Pfam | InterPro |
| Metlim_0721 | EHQ34844 | PAS/PAC sensor signal transduction histid... | CDD | UniProt | Pfam | InterPro |
| Metlim_0814 | EHQ34936 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_0817 | EHQ34939 | PAS/PAC sensor signal transduction histid... | CDD | UniProt | Pfam | InterPro |
| Metlim_0899 | EHQ35021 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_0909 | EHQ35031 | PAS/PAC sensor signal transduction histid... | CDD | UniProt | Pfam | InterPro |
| Metlim_0911 | EHQ35033 | histidine kinase [Methanoplanus limicola ... | CDD | UniProt | Pfam | InterPro |
| Metlim_0938 | EHQ35060 | histidine kinase [Methanoplanus limicola ... | CDD | UniProt | Pfam | InterPro |
| Metlim_1000 | EHQ35122 | PAS/PAC sensor signal transduction histid... | CDD | UniProt | Pfam | InterPro |
| Metlim_1148 | EHQ35259 | signal transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Metlim_1168 | EHQ35279 | PAS/PAC sensor signal transduction histid... | CDD | UniProt | Pfam | InterPro |
| Metlim_1222 | EHQ35332 | integral membrane sensor signal transduct... | CDD | UniProt | Pfam | InterPro |
| Metlim_1317 | EHQ35426 | signal transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Metlim_1319 | EHQ35428 | signal transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Metlim_1478 | EHQ35581 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_1502 | EHQ35605 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_1519 | EHQ35620 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_1710 | EHQ35811 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_1992 | EHQ36081 | PAS/PAC sensor signal transduction histid... | CDD | UniProt | Pfam | InterPro |
| Metlim_2014 | EHQ36100 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_2147 | EHQ36222 | ATP-binding region ATPase domain protein ... | CDD | UniProt | Pfam | InterPro |
| Metlim_2193 | EHQ36258 | integral membrane sensor signal transduct... | CDD | UniProt | Pfam | InterPro |
| Metlim_2233 | EHQ36294 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_2479 | EHQ36526 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_2630 | EHQ36671 | CheA signal transduction histidine kinase... | CDD | UniProt | Pfam | InterPro |
| Metlim_2717 | EHQ36755 | signal transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Metlim_2961 | EHQ36994 | PAS/PAC sensor signal transduction histid... | CDD | UniProt | Pfam | InterPro |
| Metlim_2977 | EHQ37009 | signal transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Metlim_3018 | EHQ37050 | integral membrane sensor signal transduct... | CDD | UniProt | Pfam | InterPro |
| Metlim_3059 | EHQ37091 | integral membrane sensor signal transduct... | CDD | UniProt | Pfam | InterPro |

Hybrid HisK

| | | | | | | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| Metlim_2017 | EHQ36103 | CheA signal transduction histidine kinase... | CDD | UniProt | Pfam | InterPro |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|

HisKA, no HATPase

| | | | | | | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| Metlim_0048 | EHQ34201 | PAS sensor protein [Methanoplanus limicol... | CDD | UniProt | Pfam | InterPro |
| Metlim_0685 | EHQ34808 | PAS sensor protein [Methanoplanus limicol... | CDD | UniProt | Pfam | InterPro |
| Metlim_1284 | EHQ35393 | PAS sensor protein [Methanoplanus limicol... | CDD | UniProt | Pfam | InterPro |
| Metlim_1482 | EHQ35585 | PAS sensor protein [Methanoplanus limicol... | CDD | UniProt | Pfam | InterPro |
| Metlim_1987 | EHQ36076 | putative PAS/PAC sensor protein [Methanop... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metlim_0900 | EHQ35022 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Metlim_0907 | EHQ35029 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Metlim_1521 | EHQ35622 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Metlim_2232 | EHQ36293 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Metlim_2583 | EHQ36625 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Metlim_2632 | EHQ36673 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|-------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metlim_0842 | EHQ34964 | putative PAS/PAC sensor protein [Methanopl... | CDD | UniProt | Pfam | InterPro |
| Metlim_1139 | EHQ35250 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Metlim_1204 | EHQ35314 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metlim_1473 | EHQ35576 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_1781 | EHQ35882 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_1993 | EHQ36082 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_2015 | EHQ36101 | response regulator receiver sensor signal ... | CDD | UniProt | Pfam | InterPro |
| Metlim_2038 | EHQ36123 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metlim_2077 | EHQ36162 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metlim_2136 | EHQ36211 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_2137 | EHQ36212 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| Metlim_2140 | EHQ36215 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metlim_2141 | EHQ36216 | putative PAS/PAC sensor protein [Methanopl... | CDD | UniProt | Pfam | InterPro |
| Metlim_2142 | EHQ36217 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Metlim_2143 | EHQ36218 | putative PAS/PAC sensor protein [Methanopl... | CDD | UniProt | Pfam | InterPro |
| Metlim_2186 | EHQ36254 | response regulator receiver sensor signal ... | CDD | UniProt | Pfam | InterPro |
| Metlim_2231 | EHQ36292 | putative PAS/PAC sensor protein [Methanop... | CDD | UniProt | Pfam | InterPro |
| Metlim_2375 | EHQ36426 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|-------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metlim_2631 | EHQ36672 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
|-------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-PAS/GAF

| | | | | | | |
|-------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Metlim_0533 | EHQ34668 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| Metlim_0794 | EHQ34917 | putative PAS/PAC sensor protein [Methanopl... | CDD | UniProt | Pfam | InterPro |
| Metlim_1147 | EHQ35258 | putative PAS/PAC sensor protein [Methanopl... | CDD | UniProt | Pfam | InterPro |
| Metlim_1285 | EHQ35394 | putative PAS/PAC sensor protein [Methanopl... | CDD | UniProt | Pfam | InterPro |
| Metlim_2716 | EHQ36754 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Metlim_2495 | EHQ36542 | response regulator receiver modulated GAF ... | CDD | UniProt | Pfam | InterPro |

Other RRs

| | | | | | | | |
|-------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|-----------------------------|
| Metlim_0426 | EHQ34565 | putative PAS/PAC sensor protein [Methanopl... | CDD | UniProt | Pfam | InterPro | (REC-PAS-PAS-HisKA) |
| Metlim_1761 | EHQ35862 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |
| Metlim_2029 | EHQ36115 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |
| Metlim_2144 | EHQ36219 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |
| Metlim_2230 | EHQ36291 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (no archaeal hits) |
| Metlim_2231 | EHQ36292 | putative PAS/PAC sensor protein [Methanopl... | CDD | UniProt | Pfam | InterPro | (REC-PAS-HisKA) |
| Metlim_3023 | EHQ37055 | putative PAS/PAC sensor protein [Methanopl... | CDD | UniProt | Pfam | InterPro | (REC-PAS-xHisKA) |
| Metlim_3060 | EHQ37092 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-PAS-wHTH-wHTH=DUF1724) |

Methanoregula boonei 6A8**HisK, no REC**

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Mboo_0295 | ABS54817 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mboo_0328 | ABS54850 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro |
| Mboo_0467 | ABS54985 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mboo_0782 | ABS55300 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mboo_0821 | ABS55339 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro |
| Mboo_0935 | ABS55453 | histidine kinase [Methanoregula boonei 6A8... | CDD | UniProt | Pfam | InterPro |
| Mboo_0936 | ABS55454 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mboo_0999 | ABS55517 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mboo_1008 | ABS55526 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mboo_1028 | ABS55546 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Mboo_1104 | ABS55622 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mboo_1112 | ABS55630 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mboo_1119 | ABS55637 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mboo_1140 | ABS55658 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mboo_1231 | ABS55749 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Mboo_1244 | ABS55762 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mboo_1250 | ABS55768 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mboo_1336 | ABS55854 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| Mboo_1359 | ABS55877 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mboo_1487 | ABS56005 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mboo_1496 | ABS56014 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mboo_1516 | ABS56034 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mboo_1527 | ABS56045 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mboo_1806 | ABS56322 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mboo_1810 | ABS56326 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mboo_1979 | ABS56493 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mboo_2061 | ABS56575 | signal transduction histidine kinase regul... | CDD | UniProt | Pfam | InterPro |
| Mboo_2200 | ABS56714 | histidine kinase [Methanoregula boonei 6A8... | CDD | UniProt | Pfam | InterPro |
| Mboo_2408 | ABS56922 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mboo_2409 | ABS56923 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |

HisKA, no HATPase

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Mboo_1107 | ABS55625 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC only

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Mboo_0332 | ABS54853 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Mboo_0900 | ABS55418 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |

| | | | | | | | |
|------------------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|-------------------|
| Mboo_0913 | ABS55431 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1023 | ABS55541 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1102 | ABS55620 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1120 | ABS55638 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1246 | ABS55764 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1338 | ABS55856 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1517 | ABS56035 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1697 | ABS56214 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1698 | ABS56215 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1811 | ABS56327 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1814 | ABS56330 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_2092 | ABS56606 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_2407 | ABS56921 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| FrzZ family (REC-REC) | | | | | | | |
| Mboo_2154 | ABS56668 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| Mboo_0161 | ABS54684 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_0274 | ABS54796 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_0292 | ABS54814 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_0309 | ABS54831 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_0331 | ABS54852 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_0338 | ABS54859 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_0339 | ABS54860 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_0402 | ABS54922 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_0459 | ABS54977 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_0640 | ABS55158 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1121 | ABS55639 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1242 | ABS55760 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1360 | ABS55878 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1463 | ABS55981 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1464 | ABS55982 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1482 | ABS56000 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1502 | ABS56020 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1520 | ABS56038 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1812 | ABS56328 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mboo_2107 | ABS56621 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_2110 | ABS56624 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mboo_2366 | ABS56880 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| Mboo_1337 | ABS55855 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| REC-PAS/GAF | | | | | | | |
| Mboo_1007 | ABS55525 | putative GAF sensor protein [Methanoregula... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1497 | ABS56015 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1807 | ABS56323 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1808 | ABS56324 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1813 | ABS56329 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mboo_1912 | ABS56427 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | |
| Mboo_0795 | ABS55313 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro | (REC-PAS-TPR) |
| Mboo_0887 | ABS55405 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-Smc) |
| Mboo_0965 | ABS55483 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (MetOD3-REC- |
| MetOD2) | | | | | | | |
| Mboo_1245 | ABS55763 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro | (REC-PAS-GAF) |
| Mboo_1311 | ABS55829 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro | (REC-PAS-xHisKA) |
| Mboo_1358 | ABS55876 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro | (REC-PAS-TPR) |
| Mboo_1478 | ABS55996 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (MetOD3-REC- |
| MetOD2) | | | | | | | |
| Mboo_1488 | ABS56006 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-xxx- |
| HTH/PadR) | | | | | | | |
| Mboo_1528 | ABS56046 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-xxx- |
| HTH/PadR) | | | | | | | |
| Mboo_1609 | ABS56126 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (MetOD5-REC) |
| Mboo_1616 | ABS56133 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro | (REC-PAS-PAS- |
| DisA) | | | | | | | |
| Mboo_1936 | ABS56451 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |
| Mboo_1937 | ABS56452 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |
| Mboo_1949 | ABS56464 | putative PAS/PAC sensor protein [Methanorg... | CDD | UniProt | Pfam | InterPro | (REC-PAS-TPR) |
| Mboo_2032 | ABS56546 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-TPR) |
| Mboo_2267 | ABS56781 | putative PAS/PAC sensor protein [Methanore... | CDD | UniProt | Pfam | InterPro | (REC-PAS-PAS-xxx) |
| Mboo_2336 | ABS56850 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (xxx_REC) |
| Mboo_2365 | ABS56879 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |

Methanoregula formicica SMSP

HisK, no REC

| | | | | | | | |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|--|
| Metfor_0128 | AGB01213 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0165 | AGB01247 | histidine kinase [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0385 | AGB01459 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0407 | AGB01480 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |

| | | | | | | | |
|--------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|---------------------|
| Metfor_0409 | AGB01482 | periplasmic component of amino acid ABC-t... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0465 | AGB01537 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0520 | AGB01590 | histidine kinase [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0557 | AGB01620 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1106 | AGB02154 | bacteriophytochrome (light-regulated sign... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1181 | AGB02255 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1257 | AGB02300 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1519 | AGB02552 | chemotaxis protein histidine kinase-like ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1687 | AGB02714 | bacteriophytochrome (light-regulated sign... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1755 | AGB02779 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1887 | AGB02908 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1974 | AGB02988 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2040 | AGB03053 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2139 | AGB03145 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2145 | AGB03151 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2161 | AGB03167 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2184 | AGB03190 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2191 | AGB03197 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2187 | AGB03193 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2193 | AGB03199 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2194 | AGB03200 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2269 | AGB03274 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2327 | AGB03331 | signal transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2801 | AGB03784 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2804 | AGB03787 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| *Metfor_0342 | AGB01419 | histidine kinase, PAS domain-containing pr... | CDD | UniProt | Pfam | InterPro | |
| Hybrid HisK | | | | | | | |
| Metfor_1885 | AGB02906 | chemotaxis protein histidine kinase-like ... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| Metfor_0758 | AGB01818 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1517 | AGB02550 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2138 | AGB03144 | CheY-like receiver domain-containing prote... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2143 | AGB03149 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2328 | AGB03332 | CheY-like receiver domain-containing prote... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| Metfor_0001 | AGB01089 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0062 | AGB01148 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0164 | AGB01246 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0325 | AGB01402 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0384 | AGB01458 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0534 | AGB01604 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0945 | AGB02000 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1387 | AGB02426 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1886 | AGB02907 | response regulator containing a CheY-like ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1959 | AGB02974 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2072 | AGB03081 | response regulator containing a CheY-like ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2186 | AGB03192 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2228 | AGB03233 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2240 | AGB03245 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2326 | AGB03330 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2329 | AGB03333 | bacteriophytochrome (light-regulated signa... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2398 | AGB03400 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2747 | AGB03732 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2844 | AGB03827 | PAS domain S-box [Methanoregula formicica... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2917 | AGB03897 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| Metfor_1518 | AGB02551 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| REC-PAS/GAF | | | | | | | |
| Metfor_0046 | AGB01132 | CheY-like receiver domain-containing prote... | CDD | UniProt | Pfam | InterPro | |
| Metfor_0405 | AGB01478 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1064 | AGB02113 | CheY-like receiver domain-containing prote... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1100 | AGB02148 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_1729 | AGB02756 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2195 | AGB03201 | CheY-like receiver domain-containing prote... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2227 | AGB03232 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| Metfor_2717 | AGB03702 | PAS domain S-box [Methanoregula formicica ... | CDD | UniProt | Pfam | InterPro | |
| REC-wHTH | | | | | | | |
| Metfor_2800 | AGB03783 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | |
| Metfor_1023 | AGB02074 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |
| Metfor_1024 | AGB02075 | response regulator containing a CheY-like ... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |
| Metfor_1444 | AGB02479 | response regulator containing a CheY-like ... | CDD | UniProt | Pfam | InterPro | (MetOD3-REC-MetOD2) |
| Metfor_1899 | AGB02918 | response regulator containing a CheY-like ... | CDD | UniProt | Pfam | InterPro | (MetOD5-REC) |
| Metfor_2262 | AGB03267 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | (REC-Smc) |

[Methanosaeta concilii GP6](#)

Hybrid HisK

| | | | | | | |
|------------------|--------------------------|---|---------------------|-------------------------|----------------------|--|
| MCON_0550 | AEB67389 | two-component hybrid sensor and regulator ... | CDD | UniProt | Pfam | InterPro |
| MCON_1408 | AEB68077 | multi-sensor hybrid histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| MCON_1632 | AEB68259 | signal transduction histidine-protein kina... | CDD | UniProt | Pfam | InterPro |
| MCON_1639 | AEB68265 | multi-sensor hybrid histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| MCON_2222 | AEB68733 | two-component hybrid sensor and regulator ... | CDD | UniProt | Pfam | InterPro |
| MCON_2375 | AEB68840 | two-component hybrid sensor and regulator ... | CDD | UniProt | Pfam | InterPro |
| MCON_3111 | AEB69416 | two-component hybrid sensor and regulator ... | CDD | UniProt | Pfam | InterPro |
| MCON_3220 | AEB69502 | histidine-protein kinase [Methanosaeta con... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| MCON_0419 | AEB67278 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| MCON_1876 | AEB68464 | two-component hybrid sensor and regulator ... | CDD | UniProt | Pfam | InterPro |
| MCON_2134 | AEB68665 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Other RRs | | | | | | |
| MCON_1506 | AEB68159 | response regulator domain with PAS sensor,... | CDD | UniProt | Pfam | InterPro (REC-PAS-GAF-xxx) |

Methanosaeta harundinacea 6Ac

| | | | | | | |
|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|---|
| HisK, no REC | | | | | | |
| Mhar_0446 | AET63831 | Multi-sensor signal transduction histidini... | CDD | UniProt | Pfam | InterPro |
| Mhar_1766 | AET65124 | PAS/PAC sensor signal transduction histid ... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Mhar_0447 | AET63832 | FilR2, methanogenesis response regulator p... | CDD | UniProt | Pfam | InterPro |
| Mhar_1520 | AET64882 | Response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| Mhar_0935 | AET64306 | Multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| REC-GAF-PAS | | | | | | |
| Mhar_2042 | AET65398 | Multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Other RRs | | | | | | |
| Mhar_0445 | AET63830 | FliR1, transcriptional regulator of metano... | CDD | UniProt | Pfam | InterPro (wHTH-DUF1724-REC) |
| Mhar_0169 | AET63560 | Response regulator domain with PAS sensor ... | CDD | UniProt | Pfam | InterPro (REC-PAS-xGAF) |

Methanosaeta thermophila PT

| | | | | | | |
|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------------------|
| HisK, no REC | | | | | | |
| Mthe_0065 | ABK13867 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mthe_0630 | ABK14421 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mthe_1493 | ABK15265 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mthe_1517 | ABK15289 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Mthe_1524 | ABK15296 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Mthe_1531 | ABK15303 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Hybrid HisK | | | | | | |
| Mthe_0384 | ABK14177 | multi-sensor hybrid histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Mthe_0064 | ABK13866 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Mthe_0407 | ABK14200 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Mthe_1248 | ABK15027 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Other RRs | | | | | | |
| Mthe_1109 | ABK14892 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro (REC-HisKA) |

Methanosalsum zhilinae DSM 4017

| | | | | | | |
|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HisK, no REC | | | | | | |
| Mzhil_0129 | AEH60009 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0133 | AEH60013 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0360 | AEH60236 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0396 | AEH60271 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0572 | AEH60439 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0577 | AEH60444 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0608 | AEH60475 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0638 | AEH60505 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0670 | AEH60537 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0839 | AEH60701 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0850 | AEH60712 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0892 | AEH60754 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0893 | AEH60755 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0910 | AEH60772 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0965 | AEH60823 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1077 | AEH60933 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1153 | AEH61009 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1154 | AEH61010 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1180 | AEH61036 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1319 | AEH61169 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1449 | AEH61289 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1529 | AEH61368 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1552 | AEH61391 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1587 | AEH61425 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1625 | AEH61461 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1694 | AEH61529 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|------------------|--------------------------|---|---------------------|-------------------------|----------------------|-------------------------------------|
| Mzhil_1793 | AEH61628 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1800 | AEH61635 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Mzhil_0575 | AEH60442 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0606 | AEH60473 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0607 | AEH60474 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1530 | AEH61369 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| Mzhil_1670 | AEH61505 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Mzhil_0576 | AEH60443 | response regulator receiver modulated CheB... | CDD | UniProt | Pfam | InterPro |
| REC-PAS | | | | | | |
| Mzhil_0343 | AEH60219 | putative PAS/PAC sensor protein [Methanosa... | CDD | UniProt | Pfam | InterPro |
| Mzhil_0637 | AEH60504 | putative PAS/PAC sensor protein [Methanosa... | CDD | UniProt | Pfam | InterPro |
| Other RRs | | | | | | |
| Mzhil_1671 | AEH61506 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro (KaiC-REC) |

Methanosarcina acetivorans C2A

HisK, no REC

| | | | | | | |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MA_0014 | AAM03468 | chemotaxis sensor histidine kinase [Methan... | CDD | UniProt | Pfam | InterPro |
| MA_0203 | AAM03656 | signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| MA_0490 | AAM03934 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_0551 | AAM03995 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_0552 | AAM03996 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_0619 | AAM04062 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_0620 | AAM04063 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_0758 | AAM04198 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_0759 | AAM04199 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_0777 | AAM04216 | signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| MA_0863 | AAM04302 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_0970 | AAM04402 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1149 | AAM04570 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1270 | AAM04689 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1274 | AAM04693 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1322 | AAM04738 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1463 | AAM04877 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1470 | AAM04884 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1627 | AAM05037 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1628 | AAM05038 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1630 | AAM05040 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1645 | AAM05053 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1646 | AAM05054 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1704 | AAM05111 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1739 | AAM05146 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1844 | AAM05249 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1878 | AAM05283 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1957 | AAM05360 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_1991 | AAM05394 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_2082 | AAM05482 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_2266 | AAM05659 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_2294 | AAM05687 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_2348 | AAM05738 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_2553 | AAM05935 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_2555 | AAM05937 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_2732 | AAM06111 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_2757 | AAM06135 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_2784 | AAM06162 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_2890 | AAM06267 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_3066 | AAM06439 | chemotaxis sensor histidine kinase [Methan... | CDD | UniProt | Pfam | InterPro |
| MA_3346 | AAM06715 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_3368 | AAM06737 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_3370 | AAM06739 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_3481 | AAM06847 | hypothetical protein MA_3481 [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MA_3543 | AAM06905 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_3962 | AAM07313 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_4026 | AAM07375 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_4561 | AAM07900 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |

Hybrid HisK

| | | | | | | |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MA_2013 | AAM05416 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_2256 | AAM05650 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_4377 | AAM07719 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MA_0016 | AAM03470 | chemotaxis response regulator [Methanosarc... | CDD | UniProt | Pfam | InterPro |
| MA_0018 | AAM03472 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MA_1268 | AAM04687 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MA_1269 | AAM04688 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MA_1366 | AAM04782 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MA_1468 | AAM04882 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MA_1469 | AAM04883 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|-------------------|--------------------------|---|-----|-------------------------|----------------------|---------------------------------------|
| MA_2012 | AAM05415 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MA_2861 | AAM06240 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MA_3068 | AAM06441 | chemotaxis response regulator [Methanosarc... | CDD | UniProt | Pfam | InterPro |
| MA_4376 | AAM07718 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MA_4671 | AAM05649 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| MA_1267 | AAM04686 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MA_3405 | AAM06772 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| MA_0015 | AAM03469 | chemotaxis protein-glutamate methylesteras... | CDD | UniProt | Pfam | InterPro |
| MA_3067 | AAM06440 | chemotaxis protein-glutamate methylesteras... | CDD | UniProt | Pfam | InterPro |
| REC-MetOD1 | | | | | | |
| MA_2445 | AAM05831 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |

Methanosarcina barkeri str. fusaro

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Mbar_A0404 | AAZ69387 | hypothetical protein Mbar_A0404 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| Mbar_A0679 | AAZ69658 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A0815 | AAZ69792 | hypothetical protein Mbar_A0815 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| Mbar_A0984 | AAZ69955 | chemotaxis sensor histidine kinase [Methan... | CDD | UniProt | Pfam | InterPro |
| Mbar_A1483 | AAZ70438 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A1535 | AAZ70485 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A1666 | AAZ70610 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A1687 | AAZ70629 | signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| Mbar_A1944 | AAZ70883 | signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| Mbar_A2184 | AAZ71112 | hypothetical protein Mbar_A2184 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| Mbar_A2362 | AAZ71283 | hypothetical protein Mbar_A2362 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| Mbar_A2552 | AAZ71465 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A2594 | AAZ71504 | hypothetical protein Mbar_A2594 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| Mbar_A2680 | AAZ71584 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A2691 | AAZ71595 | hypothetical protein Mbar_A2691 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| Mbar_A2876 | AAZ71776 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A2907 | AAZ71805 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A2935 | AAZ71830 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A3007 | AAZ71901 | two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A3036 | AAZ71928 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A3037 | AAZ71929 | hypothetical protein Mbar_A3037 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| Mbar_A3250 | AAZ72131 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| Mbar_A3447 | AAZ72320 | hypothetical protein Mbar_A3447 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| Mbar_A3538 | AAZ72407 | hypothetical protein Mbar_A3538 [Methanosa... | CDD | UniProt | Pfam | InterPro |

Hybrid HisK

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Mbar_A1052 | AAZ70020 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|

REC only

| | | | | | | |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| Mbar_A0988 | AAZ69958 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| Mbar_A0986 | AAZ69957 | chemotaxis response regulator [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| Mbar_A1051 | AAZ70019 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| Mbar_A2388 | AAZ71309 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| Mbar_A2510 | AAZ71423 | transcriptional regulator [Methanosarcina ... | CDD | UniProt | Pfam | InterPro |
| Mbar_A3248 | AAZ72129 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| Mbar_A3321 | AAZ72199 | chemotaxis protein [Methanosarcina barkeri... | CDD | UniProt | Pfam | InterPro |
| Mbar_A3448 | AAZ72321 | putative transcriptional regulator [Methan... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Mbar_A3247 | AAZ72128 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|

REC-CheB

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Mbar_A0985 | AAZ69956 | chemotaxis protein-glutamate methylesteras... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|

wHTH-REC

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|-------------------------------------|
| Mbar_A2896 | AAZ71794 | transcriptional regulator [Methanosarcina ... | CDD | UniProt | Pfam | InterPro (wHTH-REC) |
|------------|--------------------------|---|-----|-------------------------|----------------------|-------------------------------------|

REC-MetOD1

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|---------------------------------------|
| Mbar_A3109 | AAZ71996 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |
|------------|--------------------------|---|-----|-------------------------|----------------------|---------------------------------------|

Methanosarcina horonobensis

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| MSHOH_0263 | AKB76746 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_0448 | AKB76931 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_0506 | AKB76989 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_0621 | AKB77104 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_0624 | AKB77107 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_0639 | AKB77122 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_0998 | AKB77481 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1036 | AKB77519 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1037 | AKB77520 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1041 | AKB77524 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1042 | AKB77525 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1063 | AKB77546 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1129 | AKB77612 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1151 | AKB77634 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1339 | AKB77822 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |

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|--------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| MSHOH_1364 | AKB77847 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1404 | AKB77887 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1423 | AKB77906 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1428 | AKB77911 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1508 | AKB77991 | hypothetical protein MSHOH_1508 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1511 | AKB77994 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1522 | AKB78005 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1535 | AKB78018 | hypothetical protein MSHOH_1535 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1544 | AKB78027 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1630 | AKB78113 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1742 | AKB78225 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1743 | AKB78226 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1768 | AKB78251 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1801 | AKB78284 | diguanylate cyclase/phosphodiesterase (GGD... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2086 | AKB78569 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2227 | AKB78710 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2295 | AKB78778 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2307 | AKB78790 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2332 | AKB78815 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2340 | AKB78823 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2356 | AKB78839 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2462 | AKB78945 | hypothetical protein MSHOH_2462 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2471 | AKB78954 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2501 | AKB78984 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2503 | AKB78986 | hypothetical protein MSHOH_2503 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2549 | AKB79032 | hypothetical protein MSHOH_2549 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2593 | AKB79076 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2603 | AKB79086 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2678 | AKB79161 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2695 | AKB79178 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2696 | AKB79179 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2747 | AKB79230 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2788 | AKB79271 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2796 | AKB79279 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2797 | AKB79280 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3148 | AKB79631 | Two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3253 | AKB79736 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3361 | AKB79844 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3437 | AKB79920 | Signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3458 | AKB79941 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3460 | AKB79943 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3602 | AKB80085 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3603 | AKB80086 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3607 | AKB80090 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3721 | AKB80204 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3733 | AKB80216 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_3867 | AKB80350 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_4086 | AKB80569 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |
| Hybrid HisK | | | | | | |
| MSHOH_0295 | AKB76778 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1278 | AKB77761 | hypothetical protein MSHOH_1278 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1413 | AKB77896 | hypothetical protein MSHOH_1413 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1756 | AKB78239 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| MSHOH_0296 | AKB76779 | Two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1040 | AKB77523 | Two-component system response regulator [M... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1128 | AKB77611 | Response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1149 | AKB77632 | Chemotaxis regulator - transmits chemorece... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1168 | AKB77651 | Chemotaxis regulator - transmits chemorece... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1279 | AKB77762 | two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1412 | AKB77895 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1550 | AKB78033 | Response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2228 | AKB78711 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2229 | AKB78712 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2339 | AKB78822 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2341 | AKB78824 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2795 | AKB79278 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSHOH_4082 | AKB80565 | Two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro |
| MSHOH_4083 | AKB80566 | Chemotaxis regulator - transmits chemorece... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1632 | AKB78115 | Two-component system response regulator [M... | CDD | UniProt | Pfam | InterPro |
| MSHOH_4084 | AKB80567 | Chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro |
| *MSHOH_1757 | AKB78240 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| MSHOH_1039 | AKB77522 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_1633 | AKB78116 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSHOH_2793 | AKB79276 | hypothetical protein MSHOH_2793 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| MSHOH_1150 | AKB77633 | Chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro |
| wHTH-REC | | | | | | |

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|-------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|
| MSHOH_2970 | AKB79453 | Phosphate regulon transcriptional regulato... | CDD | UniProt | Pfam | InterPro | |
| REC-MetOD1 | | | | | | | |
| MSHOH_2111 | AKB78594 | Response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |

Methanosarcina lacustris

HisK, no REC

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MSLAZ_0269 | AKB73530 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_0372 | AKB73633 | Signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_0583 | AKB73844 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_0695 | AKB73956 | Two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_0772 | AKB74033 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_0907 | AKB74168 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_1507 | AKB74768 | hypothetical protein MSLAZ_1507 [Methanosa... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_1509 | AKB74770 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_1663 | AKB74924 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_1665 | AKB74926 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_1814 | AKB75075 | hypothetical protein MSLAZ_1814 [Methanosa... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_1912 | AKB75173 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_1992 | AKB75253 | hypothetical protein MSLAZ_1992 [Methanosa... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_2115 | AKB75376 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_2313 | AKB75574 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_2602 | AKB75863 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_3096 | AKB76357 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro | |

Hybrid HisK

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|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MSLAZ_2967 | AKB76228 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

REC only

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MSLAZ_0906 | AKB74167 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_1661 | AKB74922 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_1662 | AKB74923 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_1890 | AKB75151 | Response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_2968 | AKB76229 | Two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_3098 | AKB76359 | Chemotaxis regulator - transmits chemorece... | CDD | UniProt | Pfam | InterPro | |
| MSLAZ_3099 | AKB76360 | Two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro | |

REC-CheB

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MSLAZ_3097 | AKB76358 | Chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

wHTH-REC

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MSLAZ_0950 | AKB74211 | two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

REC-MetOD1

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|
| MSLAZ_1145 | AKB74406 | Response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|

Methanosarcina mazei Gol

HisK, no REC

| | | | | | | | |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MM_0168 | AAM29864 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_0169 | AAM29865 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_0328 | AAM30024 | Chemotaxis protein [Methanosarcina mazei G... | CDD | UniProt | Pfam | InterPro | |
| MM_0518 | AAM30214 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_0889 | AAM30585 | hypothetical protein MM_0889 [Methanosarci... | CDD | UniProt | Pfam | InterPro | |
| MM_0948 | AAM30644 | Sensory transduction histidine kinases [Me... | CDD | UniProt | Pfam | InterPro | |
| MM_1093 | AAM30789 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_1325 | AAM31021 | Chemotaxis protein [Methanosarcina mazei G... | CDD | UniProt | Pfam | InterPro | |
| MM_1671 | AAM31367 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_1777 | AAM31473 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_1781 | AAM31477 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_1915 | AAM31611 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_1931 | AAM31627 | sensory transduction protein kinase [Metha... | CDD | UniProt | Pfam | InterPro | |
| MM_2178 | AAM31874 | Two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MM_2275 | AAM31971 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_2276 | AAM31972 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_2277 | AAM31973 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_2435 | AAM32131 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_2515 | AAM32211 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_2629 | AAM32325 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_2646 | AAM32342 | sensory transduction protein kinase [Metha... | CDD | UniProt | Pfam | InterPro | |
| MM_2748 | AAM32444 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_2773 | AAM32469 | Two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MM_2886 | AAM32582 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_2955 | AAM32651 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_2965 | AAM32661 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_2990 | AAM32686 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |
| MM_3099 | AAM32795 | Two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MM_3101 | AAM32797 | Two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MM_3158 | AAM32854 | hypothetical protein MM_3158 [Methanosarci... | CDD | UniProt | Pfam | InterPro | |
| MM_3295 | AAM32991 | hypothetical sensory transduction histidin... | CDD | UniProt | Pfam | InterPro | |

Hybrid HisK

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|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MM_2881 | AAM32577 | Sensor histidine kinase/response regulator... | CDD | UniProt | Pfam | InterPro | |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

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|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| MM_3205 | AAM32901 | Two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
|---------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|

REC only

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|-------------------|--------------------------|--|-----|-------------------------|----------------------|---------------------------------------|
| MM_0049 | AAM29745 | conserved protein [Methanosarcina mazei Go... | CDD | UniProt | Pfam | InterPro |
| MM_0330 | AAM30026 | Chemotaxis protein [Methanosarcina mazei ... | CDD | UniProt | Pfam | InterPro |
| MM_1068 | AAM30764 | Two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro |
| MM_1327 | AAM31023 | Chemotaxis protein [Methanosarcina mazei ... | CDD | UniProt | Pfam | InterPro |
| MM_1328 | AAM31024 | Two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro |
| MM_2516 | AAM32212 | putative transcriptional regulator [Methan... | CDD | UniProt | Pfam | InterPro |
| MM_2880 | AAM32576 | Response regulator [Methanosarcina mazei G... | CDD | UniProt | Pfam | InterPro |
| MM_2953 | AAM32649 | transcriptional regulator [Methanosarcina ... | CDD | UniProt | Pfam | InterPro |
| MM_2954 | AAM32650 | transcriptional regulator [Methanosarcina ... | CDD | UniProt | Pfam | InterPro |
| MM_3206 | AAM32902 | Response regulator receiver domain [Methan... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| MM_2518 | AAM32214 | Sensory transduction histidine kinases [Me... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| MM_0329 | AAM30025 | protein-glutamate methyltransferase [Methanos... | CDD | UniProt | Pfam | InterPro |
| MM_1326 | AAM31022 | protein-glutamate methyltransferase [Methanos... | CDD | UniProt | Pfam | InterPro |
| wHTH-REC | | | | | | |
| MM_2351 | AAM32047 | transcriptional regulator [Methanosarcina ... | CDD | UniProt | Pfam | InterPro (wHTH-REC) |
| REC-MetOD1 | | | | | | |
| MM_3007 | AAM32703 | putative transcriptional regulator [Methan... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |

Methanosarcina siciliae C2J

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|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| MSSAC_0011 | AKB34601 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0014 | AKB34604 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0177 | AKB34767 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0198 | AKB34788 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0426 | AKB35016 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0427 | AKB35017 | hypothetical protein MSSAC_0427 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0481 | AKB35071 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0559 | AKB35149 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0696 | AKB35286 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0698 | AKB35288 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0717 | AKB35307 | Signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0796 | AKB35386 | hypothetical protein MSSAC_0796 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSSAC_0903 | AKB35493 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_1067 | AKB35657 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_1068 | AKB35658 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_1072 | AKB35662 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_1239 | AKB35829 | Two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_1480 | AKB36070 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_1602 | AKB36192 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_1607 | AKB36197 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_1609 | AKB36199 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_1656 | AKB36246 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_1658 | AKB36248 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_1905 | AKB36495 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2044 | AKB36634 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2244 | AKB36834 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2263 | AKB36853 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2379 | AKB36969 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2382 | AKB36972 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2503 | AKB37093 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2562 | AKB37152 | hypothetical protein MSSAC_2562 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2585 | AKB37175 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2666 | AKB37256 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2668 | AKB37258 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2881 | AKB37471 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2891 | AKB37481 | hypothetical protein MSSAC_2891 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2975 | AKB37565 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |
| MSSAC_3292 | AKB37882 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_3700 | AKB38290 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_3755 | AKB38345 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_4240 | AKB38830 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_4337 | AKB38927 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |

Hybrid HisK

MSSAC_4062 [AKB38652](#) Sensory transduction histidine kinase [Met... CDD [UniProt](#) [Pfam](#) [InterPro](#)

HisKA, no HATPase

MSSAC_1776 [AKB36366](#) Sensory transduction histidine kinase [Met... CDD [UniProt](#) [Pfam](#) [InterPro](#)

REC only

MSSAC_1073 [AKB35663](#) Two-component system response regulator [M... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MSSAC_1074 [AKB35664](#) Two-component system response regulator [M... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MSSAC_1481 [AKB36071](#) response regulator receiver [Methanosarcin... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MSSAC_2383 [AKB36973](#) response regulator receiver [Methanosarcin... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MSSAC_2384 [AKB36974](#) response regulator receiver [Methanosarcin... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MSSAC_2852 [AKB37442](#) Response regulator receiver [Methanosarcin... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MSSAC_2973 [AKB37563](#) Chemotaxis regulator - transmits chemorece... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MSSAC_4061 [AKB38651](#) Two-component response regulator [Methanos... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MSSAC_4339 [AKB38929](#) Chemotaxis regulator - transmits chemorece... CDD [UniProt](#) [Pfam](#) [InterPro](#)

MSSAC_4340 [AKB38930](#) Two-component response regulator [Methanos... CDD [UniProt](#) [Pfam](#) [InterPro](#)

| | | | | | | |
|-------------------|--------------------------|---|---------------------|-------------------------|----------------------|---------------------------------------|
| *MSSAC_2270 | AKB36860 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| MSSAC_1075 | AKB35665 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSSAC_2826 | AKB37416 | hypothetical protein MSSAC_2826 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| MSSAC_2974 | AKB37564 | Chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro |
| MSSAC_4338 | AKB38928 | Chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro |
| wHTH-REC | | | | | | |
| MSSAC_1372 | AKB35962 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro (wHTH-REC) |
| REC-MetOD1 | | | | | | |
| MSSAC_2753 | AKB37343 | Response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |

Methanosarcina sp. 795

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|------------------------------|--------------------------|--|---------------------|-------------------------|----------------------|---------------------------------------|
| HisK, no REC | | | | | | |
| AA43_03140 | ALK04871 | chemotaxis protein [Methanosarcina sp. 79... | CDD | UniProt | Pfam | InterPro |
| AA43_05040 | ALK05185 | hypothetical protein AAY43_05040 [Methano... | CDD | UniProt | Pfam | InterPro |
| AA43_05080 | ALK05190 | hypothetical protein AAY43_05080 [Methano... | CDD | UniProt | Pfam | InterPro |
| AA43_07605 | ALK05587 | histidine kinase [Methanosarcina sp. 795]... | CDD | UniProt | Pfam | InterPro |
| AA43_10675 | ALK06067 | ATPase [Methanosarcina sp. 795] ... | CDD | UniProt | Pfam | InterPro |
| AA43_11175 | ALK06146 | ATPase [Methanosarcina sp. 795] ... | CDD | UniProt | Pfam | InterPro |
| AA43_12015 | ALK06271 | histidine kinase [Methanosarcina sp. 795]... | CDD | UniProt | Pfam | InterPro |
| AA43_00695 | ALK06511 | hypothetical protein AAY43_00695 [Methano... | CDD | UniProt | Pfam | InterPro |
| AA43_01580 | ALK06525 | histidine kinase [Methanosarcina sp. 795]... | CDD | UniProt | Pfam | InterPro |
| AA43_04720 | ALK06595 | hypothetical protein AAY43_04720 [Methano... | CDD | UniProt | Pfam | InterPro |
| AA43_05095 | ALK06604 | ATPase [Methanosarcina sp. 795] ... | CDD | UniProt | Pfam | InterPro |
| AA43_08800 | ALK06679 | hypothetical protein AAY43_08800 [Methano... | CDD | UniProt | Pfam | InterPro |
| AA43_09950 | ALK06704 | histidine kinase [Methanosarcina sp. 795]... | CDD | UniProt | Pfam | InterPro |
| AA43_10595 | ALK06732 | histidine kinase [Methanosarcina sp. 795]... | CDD | UniProt | Pfam | InterPro |
| AA43_12700 | ALK06779 | hypothetical protein AAY43_12700 [Methano... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| AA43_02695 | ALK04804 | chemotaxis protein CheY [Methanosarcina s... | CDD | UniProt | Pfam | InterPro |
| AA43_03150 | ALK04873 | chemotaxis protein CheY [Methanosarcina s... | CDD | UniProt | Pfam | InterPro |
| AA43_03155 | ALK04874 | response regulator receiver protein [Meth... | CDD | UniProt | Pfam | InterPro |
| AA43_08795 | ALK05775 | response regulator [Methanosarcina sp. 79... | CDD | UniProt | Pfam | InterPro |
| AA43_09105 | ALK06687 | chemotaxis protein CheY [Methanosarcina s... | CDD | UniProt | Pfam | InterPro |
| AA43_11180 | ALK06748 | chemotaxis protein CheY [Methanosarcina s... | CDD | UniProt | Pfam | InterPro |
| AA43_11185 | ALK06147 | chemotaxis protein CheY [Methanosarcina s... | CDD | UniProt | Pfam | InterPro |
| AA43_11925 | ALK06257 | response regulator receiver protein [Meth... | CDD | UniProt | Pfam | InterPro |
| AA43_12190 | ALK06302 | chemotaxis protein CheY [Methanosarcina s... | CDD | UniProt | Pfam | InterPro |
| AA43_12695 | ALK06378 | chemotaxis protein CheY [Methanosarcina s... | CDD | UniProt | Pfam | InterPro |
| FrzZ family (REC-REC) | | | | | | |
| AA43_02690 | ALK04803 | hypothetical protein AAY43_02690 [Methano... | CDD | UniProt | Pfam | InterPro (REC-REC) |
| REC-CheB | | | | | | |
| AA43_03145 | ALK04872 | chemotaxis protein CheY [Methanosarcina s... | CDD | UniProt | Pfam | InterPro |
| wHTH-REC | | | | | | |
| AA43_09385 | ALK05869 | response regulator receiver protein [Meth... | CDD | UniProt | Pfam | InterPro |
| REC-MetOD1 | | | | | | |
| AA43_09910 | ALK05954 | response regulator receiver protein [Meth... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |

Methanosarcina sp. Kolksee

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|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| HisK, no REC | | | | | | |
| MSKOL_0340 | AKB46117 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_0357 | AKB46134 | Signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| MSKOL_0564 | AKB46341 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1045 | AKB46822 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1121 | AKB46898 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1240 | AKB47017 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1260 | AKB47037 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1422 | AKB47199 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1484 | AKB47261 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1522 | AKB47299 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1935 | AKB47712 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1981 | AKB47758 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_2142 | AKB47919 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_2550 | AKB48327 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_2674 | AKB48451 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_2698 | AKB48475 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_2796 | AKB48573 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_3109 | AKB48886 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_3208 | AKB48985 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSKOL_3471 | AKB49248 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |
| Hybrid HisK | | | | | | |
| MSKOL_0213 | AKB45990 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| MSKOL_0214 | AKB45991 | Two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1042 | AKB46819 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1044 | AKB46821 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|-------------------|--------------------------|---|-----|-------------------------|----------------------|---------------------------------------|
| MSKOL_1521 | AKB47298 | Two-component system response regulator [M... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1767 | AKB47544 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSKOL_1807 | AKB47584 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSKOL_2198 | AKB47975 | Chemotaxis regulator - transmits chemorece... | CDD | UniProt | Pfam | InterPro |
| MSKOL_2358 | AKB48135 | Response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSKOL_2859 | AKB48636 | Chemotaxis regulator - transmits chemorece... | CDD | UniProt | Pfam | InterPro |
| MSKOL_3468 | AKB49245 | Two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro |
| MSKOL_3469 | AKB49246 | Chemotaxis regulator - transmits chemorece... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| MSKOL_1520 | AKB47297 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| MSKOL_3470 | AKB49247 | Chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro |
| wHTH-REC | | | | | | |
| MSKOL_1760 | AKB47537 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| REC-MetOD1 | | | | | | |
| MSKOL_2267 | AKB48044 | Response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |

Methanosarcina sp. MTP4

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| MSMTP_0085 | AKB23554 | hypothetical protein MSMTP_0085 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSMTP_0414 | AKB23883 | hypothetical protein MSMTP_0414 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSMTP_0825 | AKB24294 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_0939 | AKB24408 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_0940 | AKB24409 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_0942 | AKB24411 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_0943 | AKB24412 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1396 | AKB24865 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1411 | AKB24880 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1460 | AKB24929 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1504 | AKB24973 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1620 | AKB25089 | hypothetical protein MSMTP_1620 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1623 | AKB25092 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1695 | AKB25164 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1707 | AKB25176 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1722 | AKB25191 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1802 | AKB25271 | hypothetical protein MSMTP_1802 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1803 | AKB25272 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1820 | AKB25289 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_2016 | AKB25485 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_2352 | AKB25821 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_2594 | AKB26063 | hypothetical protein MSMTP_2594 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSMTP_2661 | AKB26130 | Signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| MSMTP_2667 | AKB26136 | Signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| MSMTP_2678 | AKB26147 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_3240 | AKB26709 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |

Hybrid HisK

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| MSMTP_0269 | AKB23738 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1703 | AKB25172 | Two-component sensor histidine kinase PleC... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| MSMTP_0270 | AKB23739 | Two-component response regulator [Methano... | CDD | UniProt | Pfam | InterPro |
| MSMTP_0938 | AKB24407 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSMTP_0941 | AKB24410 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1102 | AKB24571 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1454 | AKB24923 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1455 | AKB24924 | multi-sensor signal transduction histidin... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1621 | AKB25090 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1624 | AKB25093 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1625 | AKB25094 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSMTP_1704 | AKB25173 | Two-component response regulator [Methano... | CDD | UniProt | Pfam | InterPro |
| MSMTP_2159 | AKB25628 | Pole remodelling regulatory diguanylate c... | CDD | UniProt | Pfam | InterPro |
| MSMTP_3237 | AKB26706 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSMTP_3238 | AKB26707 | Chemotaxis regulator - transmits chemorec... | CDD | UniProt | Pfam | InterPro |
| *MSMTP_1456 | AKB24925 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| MSMTP_1293 | AKB24762 | hypothetical protein MSMTP_1293 [Methanos... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

REC-CheB

| | | | | | | |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| MSMTP_3239 | AKB26708 | Chemotaxis response regulator protein-glu... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

REC-MetOD1

| | | | | | | |
|------------|--------------------------|--|-----|-------------------------|----------------------|---------------------------------------|
| MSMTP_1866 | AKB25335 | Response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |
|------------|--------------------------|--|-----|-------------------------|----------------------|---------------------------------------|

Methanosarcina sp. WH1

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| MSWH1_0255 | AKB20526 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1026 | AKB21297 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1081 | AKB21352 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1350 | AKB21621 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1353 | AKB21624 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|--------------------------|--------------------------|---|---------------------|-------------------------|----------------------|---------------------------------------|
| MSWH1_1358 | AKB21629 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1483 | AKB21754 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1616 | AKB21887 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1618 | AKB21889 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1636 | AKB21907 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1705 | AKB21976 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1972 | AKB22243 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1991 | AKB22262 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_2005 | AKB22276 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_2555 | AKB22826 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_2628 | AKB22899 | Signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| MSWH1_2751 | AKB23022 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_2761 | AKB23032 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_2864 | AKB23135 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWH1_3188 | AKB23459 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |
| Hybrid HisK | | | | | | |
| MSWH1_1194 | AKB21465 | hypothetical protein MSWH1_1194 [Methanos... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1671 | AKB21942 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| HisKA, no HATPase | | | | | | |
| MSWH1_2372 | AKB22643 | Two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| MSWH1_0476 | AKB20747 | Two-component response regulator [Methano... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1193 | AKB21464 | GGDEF/response regulator receiver domain ... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1354 | AKB21625 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1501 | AKB21772 | Response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| *MSWH1_1502 | AKB21773 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1572 | AKB21843 | Two-component response regulator [Methano... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1614 | AKB21885 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1615 | AKB21886 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1672 | AKB21943 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSWH1_1673 | AKB21944 | Response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSWH1_3185 | AKB23456 | Two-component response regulator [Methano... | CDD | UniProt | Pfam | InterPro |
| MSWH1_3186 | AKB23457 | Chemotaxis regulator - transmits chemorec... | CDD | UniProt | Pfam | InterPro |
| *MSWH1_0475 | AKB20746 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| *MSWH1_1574 | AKB21845 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| MSWH1_1869 | AKB22140 | hypothetical protein MSWH1_1869 [Methanos... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| MSWH1_3187 | AKB23458 | Chemotaxis response regulator protein-glu... | CDD | UniProt | Pfam | InterPro |
| wHTH-REC | | | | | | |
| MSWH1_2295 | AKB22566 | Phosphate regulon transcriptional regulat... | CDD | UniProt | Pfam | InterPro |
| REC-MetOD1 | | | | | | |
| MSWH1_1245 | AKB21516 | Response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |

Methanosarcina sp. WMM596

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|--------------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MSWHS_0265 | AKB17128 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1097 | AKB17960 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1150 | AKB18013 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1439 | AKB18302 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1608 | AKB18471 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1664 | AKB18527 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1683 | AKB18546 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1685 | AKB18548 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1848 | AKB18711 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_2128 | AKB18991 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_2277 | AKB19140 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_2287 | AKB19150 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_2410 | AKB19273 | Signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| MSWHS_2483 | AKB19346 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_3065 | AKB19928 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_3079 | AKB19942 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_3098 | AKB19961 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_3189 | AKB20052 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_3196 | AKB20059 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_3397 | AKB20260 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |
| Hybrid HisK | | | | | | |
| MSWHS_1269 | AKB18132 | hypothetical protein MSWHS_1269 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1628 | AKB18491 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| HisKA, no HATPase | | | | | | |
| MSWHS_2744 | AKB19607 | Two component system histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| MSWHS_0484 | AKB17347 | Two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1268 | AKB18131 | GGDEF/response regulator receiver domain ... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1626 | AKB18489 | Response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1627 | AKB18490 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1686 | AKB18549 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1687 | AKB18550 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1737 | AKB18600 | Two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|-------------------|--------------------------|---|-----|-------------------------|----------------------|---------------------------------------|
| *MSWHS_1831 | AKB18694 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSWHS_1832 | AKB18695 | Response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSWHS_3190 | AKB20053 | response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro |
| MSWHS_3394 | AKB20257 | Two-component response regulator [Methanos... | CDD | UniProt | Pfam | InterPro |
| MSWHS_3395 | AKB20258 | Chemotaxis regulator - transmits chemorece... | CDD | UniProt | Pfam | InterPro |
| *MSWHS_0483 | AKB17346 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| *MSWHS_1734 | AKB18597 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| MSWHS_1462 | AKB18325 | hypothetical protein MSWHS_1462 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| MSWHS_3396 | AKB20259 | Chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro |
| wHTH-REC | | | | | | |
| MSWHS_2780 | AKB19643 | Phosphate regulon transcriptional regulato... | CDD | UniProt | Pfam | InterPro (wHTH-REC) |
| REC-MetOD1 | | | | | | |
| MSWHS_1321 | AKB18184 | Response regulator receiver [Methanosarcin... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |
| Other RRs | | | | | | |
| MSWHS_1735 | AKB18598 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro (REC-xREC) |
| *MSWHS_3191 | AKB20054 | hypothetical protein MSWHS_3191 [Methanosa... | CDD | UniProt | Pfam | InterPro |

Methanosarcina thermophila CHTI-55

HisK, no REC

| | | | | | | |
|-------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| MSTHC_0124 | AKB14442 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_0141 | AKB14459 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_0235 | AKB14553 | hypothetical protein MSTHC_0235 [Methanosa... | CDD | UniProt | Pfam | InterPro |
| MSTHC_0272 | AKB14590 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_0274 | AKB14592 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| *MSTHC_0276 | AKB14594 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_0277 | AKB14595 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_0360 | AKB14678 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_0502 | AKB14820 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1085 | AKB15403 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1088 | AKB15406 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1096 | AKB15414 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1155 | AKB15473 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1198 | AKB15516 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| *MSTHC_1199 | AKB15517 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1457 | AKB15775 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1739 | AKB16057 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1916 | AKB16234 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1918 | AKB16236 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_2084 | AKB16402 | Signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| MSTHC_2312 | AKB16630 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSTHC_2537 | AKB16855 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |

Hybrid HisK

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| MSTHC_1534 | AKB15852 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|

REC only

| | | | | | | |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| MSTHC_0236 | AKB14554 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSTHC_0237 | AKB14555 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSTHC_0341 | AKB14659 | Response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSTHC_0396 | AKB14714 | Chemotaxis regulator - transmits chemorec... | CDD | UniProt | Pfam | InterPro |
| MSTHC_0501 | AKB14819 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSTHT_0940 | AKB12698 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1454 | AKB15772 | Two-component response regulator [Methano... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1455 | AKB15773 | Chemotaxis regulator - transmits chemorec... | CDD | UniProt | Pfam | InterPro |
| MSTHC_1533 | AKB15851 | Two-component response regulator [Methano... | CDD | UniProt | Pfam | InterPro |
| MSTHC_2311 | AKB16629 | Two-component system response regulator [... | CDD | UniProt | Pfam | InterPro |
| MSTHC_2366 | AKB16684 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| MSTHC_2310 | AKB16628 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

REC-CheB

| | | | | | | |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| MSTHC_1456 | AKB15774 | Chemotaxis response regulator protein-glu... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

wHTH-REC

| | | | | | | |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| MSTHT_0853 | AKB12611 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

| | | | | | | |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| MSTHC_2418 | AKB16736 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|

REC-MetOD1

| | | | | | | |
|------------|--------------------------|--|-----|-------------------------|----------------------|---------------------------------------|
| MSTHC_2530 | AKB16848 | Response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |
|------------|--------------------------|--|-----|-------------------------|----------------------|---------------------------------------|

Methanosarcina vacuolata Z-761

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| MSVAZ_0356 | AKB42625 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSVAZ_0372 | AKB42641 | Signal-transducing histidine kinase [Metha... | CDD | UniProt | Pfam | InterPro |
| MSVAZ_0588 | AKB42857 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSVAZ_0705 | AKB42974 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSVAZ_1090 | AKB43359 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSVAZ_1169 | AKB43438 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSVAZ_1297 | AKB43566 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MSVAZ_1321 | AKB43590 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |

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|--------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--------------|
| MSVAZ_1478 | AKB43747 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_1553 | AKB43822 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_1591 | AKB43860 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_1954 | AKB44223 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_2000 | AKB44269 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_2146 | AKB44415 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_2540 | AKB44809 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_2670 | AKB44939 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_2694 | AKB44963 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_2797 | AKB45066 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_3145 | AKB45414 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_3244 | AKB45513 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_3503 | AKB45772 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro | |
| Hybrid HisK | | | | | | | |
| MSVAZ_0219 | AKB42488 | Sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| MSVAZ_0220 | AKB42489 | Two-component response regulator [Methano... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_1087 | AKB43356 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_1089 | AKB43358 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_1590 | AKB43859 | Two-component system response regulator [... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_1791 | AKB44060 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_1830 | AKB44099 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_2204 | AKB44473 | Chemotaxis regulator - transmits chemorec... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_2348 | AKB44617 | Response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_3499 | AKB45768 | Two-component response regulator [Methano... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_3500 | AKB45769 | Chemotaxis regulator - transmits chemorec... | CDD | UniProt | Pfam | InterPro | |
| MSVAZ_3502 | AKB45771 | Chemotaxis response regulator protein-glu... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| MSVAZ_1589 | AKB43858 | Sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro | |
| wHTH-REC | | | | | | | |
| MSVAZ_1784 | AKB44053 | response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro | (wHTH-REC) |
| REC-MetOD1 | | | | | | | |
| MSVAZ_2260 | AKB44529 | Response regulator receiver [Methanosarci... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |

Methanosphaerula palustris E1-9c

HisK, no REC

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpal_0053 | ACL15447 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0058 | ACL15452 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0157 | ACL15550 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0273 | ACL15656 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0574 | ACL15946 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0667 | ACL16035 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0877 | ACL16235 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0908 | ACL16262 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0994 | ACL16345 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1055 | ACL16402 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1172 | ACL16514 | histidine kinase [Methanosphaerula palustr... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1307 | ACL16641 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1656 | ACL16968 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1660 | ACL16972 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1687 | ACL16996 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1776 | ACL17083 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1856 | ACL17161 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2002 | ACL17305 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2205 | ACL17501 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2213 | ACL17508 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2216 | ACL17510 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2222 | ACL17515 | histidine kinase [Methanosphaerula palustr... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2251 | ACL17544 | signal transduction histidine kinase, nitr... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2258 | ACL17549 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2259 | ACL17550 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2433 | ACL17712 | Osmosensitive K ⁺ channel histidine kinase-... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2453 | ACL17730 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2461 | ACL17738 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2554 | ACL17826 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2588 | ACL17858 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |

Hybrid HisK

| | | | | | | | |
|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpal_1329 | ACL16662 | CheA signal transduction histidine kinase [... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1518 | ACL16832 | PAS/PAC sensor hybrid histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1818 | ACL17124 | PAS/PAC sensor hybrid histidine kinase [Met... | CDD | UniProt | Pfam | InterPro | |

HisKA, no HATPase

| | | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| Mpal_2249 | ACL17542 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| Mpal_1519 | ACL16833 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1771 | ACL17078 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1858 | ACL17163 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2157 | ACL17455 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2212 | ACL17507 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |

| | | | | | | | |
|--------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|------------------------------|
| Mpal_2247 | ACL17540 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2268 | ACL17557 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| Mpal_0015 | ACL15411 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0047 | ACL15442 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0079 | ACL15473 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0170 | ACL15563 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0266 | ACL15650 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0715 | ACL16081 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0932 | ACL16284 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1070 | ACL16416 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1167 | ACL16509 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1293 | ACL16627 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1331 | ACL16664 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1514 | ACL16828 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1520 | ACL16834 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1525 | ACL16839 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1640 | ACL16952 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1755 | ACL17062 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1773 | ACL17080 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1919 | ACL17223 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2462 | ACL17739 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2477 | ACL17753 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2700 | ACL17964 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2706 | ACL17970 | hypothetical protein Mpal_2706 [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| Mpal_1330 | ACL16663 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1857 | ACL17162 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| REC-PAS/GAF | | | | | | | |
| Mpal_0048 | ACL15443 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0141 | ACL15534 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0573 | ACL15945 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Mpal_0622 | ACL15993 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1335 | ACL16668 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mpal_1709 | ACL17017 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2215 | ACL17509 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2266 | ACL17555 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2464 | ACL17740 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mpal_2756 | ACL18015 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | |
| Mpal_1470 | ACL16792 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (unique???) |
| Mpal_1772 | ACL17079 | methyl-accepting chemotaxis sensory transd... | CDD | UniProt | Pfam | InterPro | (REC-PAS-PAS-HAMP-MCPsignal) |
| Mpal_2156 | ACL17454 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |

Methanospirillum hungatei JF-1

HisK, no REC

| | | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|--|
| Mhun_0005 | ABD39786 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0110 | ABD39888 | CheA signal transduction histidine kinases... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0170 | ABD39946 | ATP-binding region, ATPase-like protein [M... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0325 | ABD40095 | histidine kinase [Methanospirillum hungate... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0358 | ABD40128 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0463 | ABD40225 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0471 | ABD40233 | histidine kinase [Methanospirillum hungate... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0640 | ABD40396 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0700 | ABD40453 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0885 | ABD40635 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0925 | ABD40675 | histidine kinase [Methanospirillum hungate... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1199 | ABD40946 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1234 | ABD40980 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1287 | ABD41030 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1346 | ABD41086 | histidine kinase [Methanospirillum hungate... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1350 | ABD41090 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1352 | ABD41092 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1413 | ABD41148 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1414 | ABD41149 | signal transduction histidine kinase regul... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1417 | ABD41152 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1433 | ABD41168 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1435 | ABD41170 | periplasmic sensor signal transduction his... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1442 | ABD41177 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1563 | ABD41294 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1647 | ABD41378 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1933 | ABD41644 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1958 | ABD41668 | periplasmic ligand-binding sensor protein ... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1963 | ABD41673 | periplasmic sensor signal transduction his... | CDD | UniProt | Pfam | InterPro | |
| Mhun_2024 | ABD41733 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Mhun_2038 | ABD41746 | signal transduction histidine kinase regul... | CDD | UniProt | Pfam | InterPro | |
| Mhun_2434 | ABD42135 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro | |

| | | | | | | |
|--------------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Mhun_2640 | ABD42337 | histidine kinase [Methanospirillum hungate... | CDD | UniProt | Pfam | InterPro |
| Mhun_2642 | ABD42339 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_2672 | ABD42368 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mhun_2676 | ABD42372 | histidine kinase [Methanospirillum hungate... | CDD | UniProt | Pfam | InterPro |
| Mhun_2683 | ABD42378 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mhun_2687 | ABD42382 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mhun_2689 | ABD42384 | Cache sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_2693 | ABD42388 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| Mhun_2719 | ABD42414 | periplasmic sensor signal transduction his... | CDD | UniProt | Pfam | InterPro |
| Mhun_2775 | ABD42470 | ATP-binding region, ATPase-like protein [M... | CDD | UniProt | Pfam | InterPro |
| Mhun_2876 | ABD42568 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_2965 | ABD42653 | histidine kinase [Methanospirillum hungate... | CDD | UniProt | Pfam | InterPro |
| Mhun_3167 | ABD42849 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Hybrid HisK | | | | | | |
| Mhun_0494 | ABD40256 | CheA signal transduction histidine kinases... | CDD | UniProt | Pfam | InterPro |
| Mhun_0989 | ABD40739 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| HisKA, no HATPase | | | | | | |
| Mhun_0006 | ABD39787 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Mhun_0108 | ABD39886 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_0126 | ABD39903 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_0159 | ABD39935 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_0161 | ABD39937 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_0315 | ABD40085 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_0886 | ABD40636 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_0953 | ABD40703 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_1439 | ABD41174 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_1643 | ABD41374 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_1923 | ABD41634 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_1941 | ABD41652 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_1966 | ABD41676 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_2031 | ABD41739 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_2037 | ABD41745 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_2576 | ABD42273 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_2673 | ABD42369 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_2684 | ABD42379 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_2690 | ABD42385 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_2877 | ABD42569 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_2879 | ABD42571 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_3035 | ABD42722 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_3040 | ABD42727 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_3041 | ABD42728 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| Mhun_3201 | ABD42883 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| Mhun_0004 | ABD39785 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_0160 | ABD39936 | PAS/PAC sensor hybrid histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| Mhun_0454 | ABD40216 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mhun_0493 | ABD40255 | response regulator receiver sensor signal ... | CDD | UniProt | Pfam | InterPro |
| Mhun_0545 | ABD40305 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_0549 | ABD40309 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_0986 | ABD40736 | response regulator receiver sensor signal ... | CDD | UniProt | Pfam | InterPro |
| Mhun_0987 | ABD40737 | response regulator receiver sensor signal ... | CDD | UniProt | Pfam | InterPro |
| Mhun_1048 | ABD40798 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1208 | ABD40955 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1309 | ABD41049 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1349 | ABD41089 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1353 | ABD41093 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1354 | ABD41094 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1415 | ABD41150 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1419 | ABD41154 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1420 | ABD41155 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1481 | ABD41215 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1649 | ABD41380 | response regulator receiver sensor signal ... | CDD | UniProt | Pfam | InterPro |
| Mhun_1723 | ABD41446 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mhun_1739 | ABD41461 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1792 | ABD41513 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1846 | ABD41563 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1847 | ABD41564 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1943 | ABD41654 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_1962 | ABD41672 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_2385 | ABD42087 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| Mhun_2636 | ABD42333 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mhun_3038 | ABD42725 | signal transduction histidine kinase [Meth... | CDD | UniProt | Pfam | InterPro |
| Mhun_3039 | ABD42726 | response regulator receiver sensor signal ... | CDD | UniProt | Pfam | InterPro |
| Mhun_3202 | ABD42884 | response regulator receiver sensor signal ... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Mhun_0109 | ABD39887 | response regulator receiver (CheY-like) mo... | CDD | UniProt | Pfam | InterPro |
| Mhun_0988 | ABD40738 | response regulator receiver (CheY-like) mo... | CDD | UniProt | Pfam | InterPro |
| REC-PAS/GAF | | | | | | |

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|------------------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|---------------------|
| Mhun_0118 | ABD39895 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0455 | ABD40217 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | |
| Mhun_0642 | ABD40398 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1026 | ABD40776 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1267 | ABD41010 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1438 | ABD41173 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mhun_2026 | ABD41735 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| Mhun_2671 | ABD42367 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | |
| Mhun_2967 | ABD42655 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | |
| REC-PAS-PAS-MCPsignal | | | | | | | |
| Mhun_2551 | ABD42250 | methyl-accepting chemotaxis sensory transd... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | |
| Mhun_0264 | ABD40035 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | (no archaeal hits) |
| Mhun_0840 | ABD40592 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | (no archaeal hits) |
| Mhun_1200 | ABD40947 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | (no archaeal hits) |
| Mhun_1290 | ABD41033 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1440 | ABD41175 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | (REC-PAS-PAS-HisKA) |
| Mhun_1472 | ABD41206 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |
| Mhun_1572 | ABD41303 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1607 | ABD41338 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | |
| Mhun_1613 | ABD41344 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |
| Mhun_1618 | ABD41349 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | (REC-MetOD2) |
| Mhun_1724 | ABD41447 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | |
| Mhun_2637 | ABD42334 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | (REC-PAS-HisKA) |
| Mhun_2638 | ABD42335 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | |
| Mhun_2645 | ABD42342 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | (REC-PAS-HisKA) |
| Mhun_2686 | ABD42381 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | (REC-PAS-HisKA) |
| Mhun_2691 | ABD42386 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | (REC-PAS-HisKA) |
| Mhun_2749 | ABD42444 | response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro | (REC-HATPase) |
| Mhun_2968 | ABD42656 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | (REC-PAS-HisKA) |
| Mhun_2986 | ABD42673 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | (REC-PAS-PAS-HisKA) |
| Mhun_3166 | ABD42848 | putative PAS/PAC sensor protein [Methanosp... | CDD | UniProt | Pfam | InterPro | (REC-PAS-xxx) |

Methanothermobacter marburgensis str. Marburg

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|---------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|-------------------|
| HisK, no REC | | | | | | | |
| MTBMA_c05730 | ADL58168 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c06270 | ADL58222 | predicted signal transduction histidine ... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c07310 | ADL58326 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c08400 | ADL58435 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c08790 | ADL58474 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c10000 | ADL58595 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c12200 | ADL58810 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c13690 | ADL58956 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c14790 | ADL59058 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c15070 | ADL59086 | predicted signal transduction histidine ... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c16470 | ADL59226 | predicted signal transduction histidine ... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| MTBMA_c08420 | ADL58437 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c08500 | ADL58445 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c08550 | ADL58450 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c12950 | ADL58883 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| MTBMA_c12960 | ADL58884 | predicted sensory transduction histidine... | CDD | UniProt | Pfam | InterPro | |
| REC-PAS | | | | | | | |
| MTBMA_c08360 | ADL58431 | predicted sensory transduction regulator... | CDD | UniProt | Pfam | InterPro | |
| REC-PAS-GAF | | | | | | | |
| MTBMA_c03410 | ADL57942 | predicted signal transduction protein [M... | CDD | UniProt | Pfam | InterPro | |
| REC-BcsA | | | | | | | |
| MTBMA_c09390 | ADL58534 | predicted sensory transduction regulator... | CDD | UniProt | Pfam | InterPro | (REC-BcsA) |
| REC-MetOD1 | | | | | | | |
| MTBMA_c08430 | ADL58438 | predicted sensory transduction regulator... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |
| Other RRs | | | | | | | |
| MTBMA_c01930 | ADL57802 | predicted signal transduction protein [M... | CDD | UniProt | Pfam | InterPro | (REC-PAS-GAF-xxx) |

Methanothermobacter sp. CaT2

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|---------------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|--|
| HisK, no REC | | | | | | | |
| MTCT_0088 | BAM69337 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro | |
| MTCT_0141 | BAM69390 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro | |
| MTCT_0244 | BAM69493 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro | |
| MTCT_0300 | BAM69549 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro | |
| MTCT_0304 | BAM69553 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro | |
| MTCT_0384 | BAM69633 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro | |
| MTCT_0404 | BAM69653 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro | |

| | | | | | | |
|--------------------|--------------------------|--|-----|-------------------------|----------------------|---|
| MTCT_0548 | BAM69797 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| MTCT_0739 | BAM69988 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| MTCT_0895 | BAM70144 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| MTCT_0989 | BAM70237 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| MTCT_1151 | BAM70399 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| MTCT_0385 | BAM69634 | sensory transduction regulatory protein [... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| MTCT_0386 | BAM69635 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| MTCT_0395 | BAM69644 | sensory transduction regulatory protein [... | CDD | UniProt | Pfam | InterPro |
| MTCT_0817 | BAM70066 | sensory transduction regulatory protein [... | CDD | UniProt | Pfam | InterPro |
| MTCT_0818 | BAM70067 | sensory transduction histidine kinase [Me... | CDD | UniProt | Pfam | InterPro |
| REC-PAS/GAF | | | | | | |
| MTCT_1611 | BAM70859 | sensory transduction regulatory protein [... | CDD | UniProt | Pfam | InterPro |
| MTCT_1466 | BAM70714 | truncated sensory transduction regulatory... | CDD | UniProt | Pfam | InterPro |
| REC-BcsA | | | | | | |
| MTCT_0476 | BAM69725 | sensory transduction regulatory protein [... | CDD | UniProt | Pfam | InterPro (REC-BcsA) |
| REC-MetOD1 | | | | | | |
| MTCT_0380 | BAM69629 | sensory transduction regulatory protein [... | CDD | UniProt | Pfam | InterPro (REC-PAS-MetOD1) |
| MTCT_0387 | BAM69636 | sensory transduction regulatory protein [... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |

Methanothermobacter thermautotrophicus str. Delta H

HisK, no REC

| | | | | | | |
|--------------------|--------------------------|---|-----|-------------------------|----------------------|---|
| MTH_123 | AAB84629 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_174 | AAB84680 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_292 | AAB84798 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_356 | AAB84862 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_360 | AAB84866 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_444 | AAB84950 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_459 | AAB84965 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_468 | AAB84974 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_619 | AAB85125 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_823 | AAB85323 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_985 | AAB85482 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_1124 | AAB85613 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| MTH_1260 | AAB85749 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| MTH445 | AAB84951 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| MTH_446 | AAB84952 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro |
| MTH_901 | AAB85399 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro |
| MTH_902 | AAB85400 | sensory transduction histidine kinase [Met... | CDD | UniProt | Pfam | InterPro |
| REC-PAS/GAF | | | | | | |
| MTH457 | AAB84963 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro |
| MTH1764 | AAB86230 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro |
| REC-BcsA | | | | | | |
| MTH548 | AAB85054 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro (REC-BcsA) |
| *MTH549 | AAB85055 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro |
| REC-MetOD1 | | | | | | |
| MTH440 | AAB84946 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro (REC-PAS-MetOD1) |
| MTH447 | AAB84953 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro (REC-MetOD1) |
| Other RRs | | | | | | |
| MTH1607 | AAB86080 | sensory transduction regulatory protein [M... | CDD | UniProt | Pfam | InterPro (PAS-GAF-xxx) |

Methanothermobacter wolfeii

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| MWSIV6_0538 | SCM56481 | Sensory transduction histidine kinase {EC... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_0590 | SCM56579 | putative sensor histidine kinase pdtaS [M... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_0703 | SCM56787 | Sensory transduction histidine kinase {EC... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_0748 | SCM56863 | Sensory transduction histidine kinase {EC... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_0752 | SCM56870 | Sensory transduction histidine kinase {EC... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_0761 | SCM56887 | putative sensor histidine kinase pdtaS [M... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_0842 | SCM57028 | putative sensor histidine kinase pdtaS [M... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_0847 | SCM57037 | Sensory transduction histidine kinase {EC... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_0868 | SCM57073 | putative sensory transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_0994 | SCM57299 | putative sensor histidine kinase pdtaS [M... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_1199 | SCM57679 | Sensor protein FixL [Methanothermobacter ... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_1373 | SCM57984 | Methyl sulfide methyltransferase-associat... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_1516 | SCM58236 | Sensory transduction histidine kinase {EC... | CDD | UniProt | Pfam | InterPro |
| *MWSIV6_1515 | SCM58234 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_1652 | SCM58475 | Sensory transduction histidine kinase {EC... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| MWSIV6_0829 | SCM57006 | putative methanogenesis regulatory protei... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| MWSIV6_0830 | SCM57008 | putative sensor histidine kinase pdtaS [M... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_1274 | SCM57813 | putative transcriptional regulatory prote... | CDD | UniProt | Pfam | InterPro |
| MWSIV6_1275 | SCM57815 | Nodulation protein V [Methanothermobacter... | CDD | UniProt | Pfam | InterPro |

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|--------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------------|
| REC-PAS/GAF | | | | | | | |
| MWSIV6_0305 | SCM56061 | Acetoacetate metabolism regulatory protei... | CDD | UniProt | Pfam | InterPro | |
| MWSIV6_0841 | SCM57027 | KDP operon transcriptional regulatory pro... | CDD | UniProt | Pfam | InterPro | |
| REC-BcsA | | | | | | | |
| MWSIV6_0915 | SCM57154 | putative glycosyltransferase YdaM [Methan... | CDD | UniProt | Pfam | InterPro | (REC-BcsA) |
| REC-MetOD1 | | | | | | | |
| MWSIV6_0824 | SCM56997 | putative transcriptional regulatory prote... | CDD | UniProt | Pfam | InterPro | (REC-PAS-MetOD1) |
| MWSIV6_0831 | SCM57009 | putative transcriptional regulatory prote... | CDD | UniProt | Pfam | InterPro | (REC-MetOD1) |
| Other RRs | | | | | | | |
| MWSIV6_0153 | SCM55785 | Sensory transduction regulatory protein [...] | CDD | UniProt | Pfam | InterPro | (REC-GAF-xxx) |

Methanothermococcus okinawensis

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|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HisK, no REC | | | | | | | |
| Metok_1036 | AEH07006 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro | |
| Metok_1419 | AEH07384 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| Metok_1037 | AEH07007 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| Metok_1412 | AEH07377 | response regulator receiver protein [Metha... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| Metok_1420 | AEH07385 | response regulator receiver modulated Chem... | CDD | UniProt | Pfam | InterPro | |

Natrialba magadii ATCC 43099

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|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|-------------|
| HisK, no REC | | | | | | | |
| Nmag_0168 | ADD03760 | sensor box histidine kinase [Natrialba mag... | CDD | UniProt | Pfam | InterPro | |
| Nmag_0323 | ADD03914 | sensor box histidine kinase [Natrialba mag... | CDD | UniProt | Pfam | InterPro | |
| Nmag_0435 | ADD04023 | histidine kinase [Natrialba magadii ATCC 4... | CDD | UniProt | Pfam | InterPro | |
| Nmag_1296 | ADD04876 | histidine kinase [Natrialba magadii ATCC 4... | CDD | UniProt | Pfam | InterPro | |
| Nmag_2062 | ADD05632 | sensor box histidine kinase [Natrialba mag... | CDD | UniProt | Pfam | InterPro | |
| Nmag_2888 | ADD06441 | taxis sensor histidine kinase CheA [Natria... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3106 | ADD06658 | sensor box histidine kinase [Natrialba mag... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3149 | ADD06701 | taxis sensor histidine kinase CheA [Natria... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3188 | ADD06738 | histidine kinase [Natrialba magadii ATCC 4... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3216 | ADD06766 | sensor box histidine kinase [Natrialba mag... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3297 | ADD06847 | sensor box histidine kinase [Natrialba mag... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3535 | ADD07085 | sensor box histidine kinase [Natrialba mag... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3954 | ADD07494 | sensor box histidine kinase (plasmid) [Nat... | CDD | UniProt | Pfam | InterPro | |
| Nmag_4064 | ADD07590 | sensor box histidine kinase (plasmid) [Nat... | CDD | UniProt | Pfam | InterPro | |
| Nmag_4101 | ADD07622 | sensor box histidine kinase (plasmid) [Nat... | CDD | UniProt | Pfam | InterPro | |
| Nmag_4114 | ADD07633 | histidine kinase (plasmid) [Natrialba maga... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| Nmag_0951 | ADD04535 | receiver box response regulator [Natrialba... | CDD | UniProt | Pfam | InterPro | |
| Nmag_1095 | ADD04679 | receiver box response regulator [Natrialba... | CDD | UniProt | Pfam | InterPro | |
| Nmag_1130 | ADD04714 | receiver box response regulator [Natrialba... | CDD | UniProt | Pfam | InterPro | |
| Nmag_1797 | ADD05371 | receiver box response regulator [Natrialba... | CDD | UniProt | Pfam | InterPro | |
| Nmag_2693 | ADD06249 | receiver box response regulator [Natrialba... | CDD | UniProt | Pfam | InterPro | |
| Nmag_2877 | ADD06430 | response regulator CheY [Natrialba magadii... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3151 | ADD06703 | response regulator CheY [Natrialba magadii... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3379 | ADD06929 | receiver box response regulator [Natrialba... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3389 | ADD06939 | receiver box response regulator [Natrialba... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3679 | ADD07225 | receiver box response regulator (plasmid) ... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| Nmag_2042 | ADD05612 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3740 | ADD07282 | receiver/sensor box histidine kinase (plas... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| Nmag_2887 | ADD06440 | protein-glutamate methylesterase CheB [Nat... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3150 | ADD06702 | protein-glutamate methylesterase CheB [Nat... | CDD | UniProt | Pfam | InterPro | |
| REC-HalX | | | | | | | |
| Nmag_3536 | ADD07086 | receiver box response regulator [Natrialba... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3741 | ADD07283 | receiver box response regulator (plasmid) ... | CDD | UniProt | Pfam | InterPro | |
| HlxR-REC | | | | | | | |
| Nmag_2044 | ADD05614 | HxlR family transcription regulator / rece... | CDD | UniProt | Pfam | InterPro | (wHTH-REC) |
| BAT | | | | | | | |
| Nmag_1012 | ADD04596 | receiver/sensor box HTH-10 family transcri... | CDD | UniProt | Pfam | InterPro | |
| Nmag_2147 | ADD05716 | receiver/bat box HTH-10 family transcripti... | CDD | UniProt | Pfam | InterPro | |
| Nmag_2692 | ADD06248 | receiver/bat box HTH-10 family transcripti... | CDD | UniProt | Pfam | InterPro | |
| Nmag_3054 | ADD06606 | sensor/bat box HTH-10 family transcription... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | |
| Nmag_2043 | ADD05613 | receiver box response regulator [Natrialba... | CDD | UniProt | Pfam | InterPro | (REC-xHisK) |

Natrialbaceae archaeon JW/NM-HA 15

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|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HisK, no REC | | | | | | | |
| B1756_00280 | ARS91605 | histidine kinase [Natrialbaceae archaeon ...] | CDD | UniProt | Pfam | InterPro | |
| B1756_00460 | ARS88377 | hypothetical protein B1756_00460 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_02660 | ARS88765 | hypothetical protein B1756_02660 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_02685 | ARS88770 | chemotaxis protein CheA [Natrialbaceae ar... | CDD | UniProt | Pfam | InterPro | |
| B1756_03155 | ARS88850 | hypothetical protein B1756_03155 [Natrial... | CDD | UniProt | Pfam | InterPro | |

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|------------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|-------------|
| B1756_03245 | ARS88865 | hypothetical protein B1756_03245 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_03310 | ARS88877 | hypothetical protein B1756_03310 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_04810 | ARS89140 | PAS domain-containing sensor histidine ki... | CDD | UniProt | Pfam | InterPro | |
| B1756_05205 | ARS89202 | histidine kinase [Natrialbaceae archaeon ... | CDD | UniProt | Pfam | InterPro | |
| B1756_05510 | ARS91700 | hypothetical protein B1756_05510 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_06735 | ARS89470 | hypothetical protein B1756_06735 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_08005 | ARS89689 | histidine kinase [Natrialbaceae archaeon ... | CDD | UniProt | Pfam | InterPro | |
| B1756_08185 | ARS89720 | hypothetical protein B1756_08185 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_09130 | ARS89881 | hypothetical protein B1756_09130 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_10135 | ARS90050 | PAS domain-containing sensor histidine ki... | CDD | UniProt | Pfam | InterPro | |
| B1756_11295 | ARS90250 | hypothetical protein B1756_11295 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_13070 | ARS90563 | hypothetical protein B1756_13070 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_14660 | ARS90842 | hypothetical protein B1756_14660 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_14665 | ARS90843 | PAS domain-containing sensor histidine ki... | CDD | UniProt | Pfam | InterPro | |
| B1756_14930 | ARS90894 | hypothetical protein B1756_14930 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_16740 | ARS91211 | hypothetical protein B1756_16740 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_16745 | ARS91212 | hypothetical protein B1756_16745 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_16750 | ARS91213 | hypothetical protein B1756_16750 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_17185 | ARS91283 | hypothetical protein B1756_17185 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_17710 | ARS91374 | hypothetical protein B1756_17710 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_17815 | ARS91392 | hypothetical protein B1756_17815 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_18170 | ARS91456 | hypothetical protein B1756_18170 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_18270 | ARS91475 | histidine kinase [Natrialbaceae archaeon ... | CDD | UniProt | Pfam | InterPro | |
| B1756_18940 | ARS91593 | hypothetical protein B1756_18940 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| B1756_02720 | ARS88777 | response regulator [Natrialbaceae archaeo... | CDD | UniProt | Pfam | InterPro | |
| B1756_03235 | ARS88863 | response regulator [Natrialbaceae archaeo... | CDD | UniProt | Pfam | InterPro | |
| B1756_05620 | ARS89274 | response regulator [Natrialbaceae archaeo... | CDD | UniProt | Pfam | InterPro | |
| B1756_05735 | ARS89293 | response regulator [Natrialbaceae archaeo... | CDD | UniProt | Pfam | InterPro | |
| B1756_11110 | ARS90219 | response regulator [Natrialbaceae archaeo... | CDD | UniProt | Pfam | InterPro | |
| B1756_16040 | ARS91093 | response regulator [Natrialbaceae archaeo... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| B1756_07945 | ARS89679 | hybrid sensor histidine kinase/response r... | CDD | UniProt | Pfam | InterPro | |
| B1756_10015 | ARS90029 | hybrid sensor histidine kinase/response r... | CDD | UniProt | Pfam | InterPro | |
| B1756_13745 | ARS90686 | hypothetical protein B1756_13745 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_16090 | ARS91893 | hypothetical protein B1756_16090 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_17180 | ARS91282 | hybrid sensor histidine kinase/response r... | CDD | UniProt | Pfam | InterPro | |
| B1756_17715 | ARS91375 | hypothetical protein B1756_17715 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_18395 | ARS91498 | hypothetical protein B1756_18395 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| B1756_02690 | ARS88771 | chemotaxis response regulator protein-glu... | CDD | UniProt | Pfam | InterPro | |
| REC-GAF | | | | | | | |
| B1756_04385 | ARS89068 | diguanylate cyclase [Natrialbaceae archae... | CDD | UniProt | Pfam | InterPro | |
| REC-HalX | | | | | | | |
| B1756_17720 | ARS91376 | hypothetical protein B1756_17720 [Natrial... | CDD | UniProt | Pfam | InterPro | |
| B1756_18265 | ARS91474 | DNA-binding protein [Natrialbaceae archae... | CDD | UniProt | Pfam | InterPro | |
| WHTH-REC | | | | | | | |
| B1756_04815 | ARS89141 | response regulator [Natrialbaceae archaeo... | CDD | UniProt | Pfam | InterPro | (WHTH-REC) |
| B1756_07935 | ARS89677 | HxlR family transcriptional regulator [Na... | CDD | UniProt | Pfam | InterPro | (WHTH-REC) |
| BAT | | | | | | | |
| B1756_04700 | ARS91678 | diguanylate cyclase [Natrialbaceae archae... | CDD | UniProt | Pfam | InterPro | |
| B1756_07405 | ARS89584 | diguanylate cyclase [Natrialbaceae archae... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | |
| B1756_07940 | ARS89678 | hypothetical protein B1756_07940 [Natrial... | CDD | UniProt | Pfam | InterPro | (REC-xHisK) |

[Natrinema pellirubrum DSM 15624](#)

HisK, no REC

| | | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|--|
| Natpe_0091 | AGB30037 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_0202 | AGB30142 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_0405 | AGB30336 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_1306 | AGB31211 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_1362 | AGB31266 | histidine kinase [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_1630 | AGB31527 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_1774 | AGB31663 | histidine kinase [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_2091 | AGB31920 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_2130 | AGB31959 | bacteriophytochrome (light-regulated signa... | CDD | UniProt | Pfam | InterPro | |
| Natpe_1778 | AGB31667 | histidine kinase [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_2301 | AGB32121 | signal transduction histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro | |
| Natpe_2392 | AGB32208 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_2522 | AGB32334 | signal transduction histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro | |
| Natpe_2613 | AGB32421 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_2661 | AGB32467 | chemotaxis protein histidine kinase-like p... | CDD | UniProt | Pfam | InterPro | |
| Natpe_3074 | AGB32867 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_3111 | AGB32904 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_3358 | AGB33145 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_3397 | AGB33183 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |
| Natpe_3462 | AGB33237 | signal transduction histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro | |
| Natpe_3578 | AGB33346 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro | |

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|-----------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Natpe_3603 | AGB33370 | signal transduction histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Natpe_2663 | AGB32469 | response regulator containing CheY-like re... | CDD | UniProt | Pfam | InterPro |
| Natpe_2623 | AGB32430 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Natpe_2548 | AGB32359 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Natpe_3756 | AGB33518 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Natpe_3156 | AGB32948 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Natpe_2129 | AGB31958 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| *Natpe_1740 | AGB31629 | hypothetical protein Natpe_1740 [Natrinema... | CDD | UniProt | Pfam | InterPro |
| *Natpe_1744 | AGB31633 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| Natpe_0289 | AGB30223 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro |
| Natpe_0512 | AGB30441 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro |
| Natpe_0611 | AGB30536 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro |
| Natpe_1750 | AGB31639 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro |
| Natpe_1893 | AGB31753 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro |
| Natpe_2599 | AGB32407 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro |
| Natpe_3144 | AGB32936 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Natpe_2662 | AGB32468 | chemotaxis response regulator containing a... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| Natpe_1772 | AGB31661 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Natpe_2391 | AGB32207 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| Natpe_1071 | AGB30983 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro |
| Natpe_1885 | AGB31748 | PAS domain S-box [Natrinema pellirubrum DS... | CDD | UniProt | Pfam | InterPro |
| Natpe_3155 | AGB32947 | putative DNA binding protein [Natrinema pe... | CDD | UniProt | Pfam | InterPro |
| Natpe_3634 | AGB33399 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |

Natrinema sp. J7-2

HisK, no REC

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|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| NJ7G_0185 | AFO55440 | ATP-binding region ATPase domain protein [... | CDD | UniProt | Pfam | InterPro |
| NJ7G_0557 | AFO55812 | PAS sensor protein [Natrinema sp. J7-2] ... | CDD | UniProt | Pfam | InterPro |
| NJ7G_1164 | AFO56411 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| NJ7G_1393 | AFO56640 | PAS sensor protein [Natrinema sp. J7-2] ... | CDD | UniProt | Pfam | InterPro |
| NJ7G_2984 | AFO58206 | PAS sensor protein [Natrinema sp. J7-2] ... | CDD | UniProt | Pfam | InterPro |
| NJ7G_3067 | AFO58288 | PAS sensor protein [Natrinema sp. J7-2] ... | CDD | UniProt | Pfam | InterPro |
| NJ7G_3336 | AFO58554 | PAS sensor protein [Natrinema sp. J7-2] ... | CDD | UniProt | Pfam | InterPro |
| NJ7G_3488 | AFO58705 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |
| NJ7G_3528 | AFO58745 | ATP-binding region ATPase domain protein [... | CDD | UniProt | Pfam | InterPro |
| NJ7G_3793 | AFO59010 | PAS sensor protein [Natrinema sp. J7-2] ... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| NJ7G_0324 | AFO55577 | response regulator receiver [Natrinema sp.... | CDD | UniProt | Pfam | InterPro |
| NJ7G_0885 | AFO56134 | response regulator receiver [Natrinema sp.... | CDD | UniProt | Pfam | InterPro |
| NJ7G_2773 | AFO58001 | PAS sensor protein [Natrinema sp. J7-2]..... | CDD | UniProt | Pfam | InterPro |
| NJ7G_3370 | AFO58588 | response regulator receiver protein [Natri... | CDD | UniProt | Pfam | InterPro |
| NJ7G_3530 | AFO58747 | response regulator receiver [Natrinema sp. .. | CDD | UniProt | Pfam | InterPro |
| NJ7G_3972 | AFO59186 | response regulator receiver protein [Natri... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|-----------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|
| NJ7G_2462 | AFO57693 | PAS sensor protein [Natrinema sp. J7-2]..... | CDD | UniProt | Pfam | InterPro |
| NJ7G_3303 | AFO58522 | PAS sensor protein [Natrinema sp. J7-2]..... | CDD | UniProt | Pfam | InterPro |
| NJ7G_3963 | AFO59177 | PAS sensor protein [Natrinema sp. J7-2] ... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| NJ7G_3529 | AFO58746 | CheB methyltransferase [Natrinema sp. J7-2].... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|

REC-HalX

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| NJ7G_3068 | AFO58289 | response regulator receiver protein [Natri... | CDD | UniProt | Pfam | InterPro |
| NJ7G_3487 | AFO58706 | HalX domain protein [Natrinema sp. J7-2]..... | CDD | UniProt | Pfam | InterPro |

BAT

| | | | | | | |
|-----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| NJ7G_0213 | AFO55468 | Bacterio-opsin activator HTH domain protei... | CDD | UniProt | Pfam | InterPro |
| NJ7G_1601 | AFO56845 | PAS sensor protein [Natrinema sp. J7-2]..... | CDD | UniProt | Pfam | InterPro |
| NJ7G_3971 | AFO59185 | Bacterio-opsin activator HTH domain protei... | CDD | UniProt | Pfam | InterPro |

Natronobacterium gregoryi SP2

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Natgr_0515 | AFZ71768 | chemotaxis protein histidine kinase-like p... | CDD | UniProt | Pfam | InterPro |
| Natgr_0560 | AFZ71810 | PAS domain S-box [Natronobacterium gregory... | CDD | UniProt | Pfam | InterPro |
| Natgr_1954 | AFZ73137 | chemotaxis protein histidine kinase-like p... | CDD | UniProt | Pfam | InterPro |
| Natgr_2193 | AFZ73371 | PAS domain S-box [Natronobacterium gregory... | CDD | UniProt | Pfam | InterPro |
| Natgr_3215 | AFZ74345 | PAS domain S-box [Natronobacterium gregory... | CDD | UniProt | Pfam | InterPro |
| Natgr_3236 | AFZ74365 | PAS domain S-box [Natronobacterium gregory... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| Natgr_0517 | AFZ71770 | response regulator containing CheY-like re... | CDD | UniProt | Pfam | InterPro |
| Natgr_1049 | AFZ72279 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Natgr_1953 | AFZ73136 | response regulator containing a CheY-like ... | CDD | UniProt | Pfam | InterPro |
| Natgr_2829 | AFZ73973 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| Natgr_3286 | AFZ74411 | CheY-like receiver domain-containing prote... | CDD | UniProt | Pfam | InterPro |
| Natgr_3323 | AFZ74448 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |

| | | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------|
| REC-HisK | | | | | | | |
| Natgr_3398 | AFZ74518 | PAS domain S-box [Natronobacterium gregory... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| Natgr_1955 | AFZ73138 | chemotaxis response regulator containing a... | CDD | UniProt | Pfam | InterPro | |
| Natgr_0516 | AFZ71769 | chemotaxis response regulator containing a... | CDD | UniProt | Pfam | InterPro | |
| REC-HalX | | | | | | | |
| Natgr_3393 | AFZ74513 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| wHTH-REC | | | | | | | |
| Natgr_2194 | AFZ73372 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | (wHTH-REC) |
| BAT | | | | | | | |
| Natgr_1050 | AFZ72280 | putative DNA binding protein [Natronobacte... | CDD | UniProt | Pfam | InterPro | |
| Natgr_1657 | AFZ72856 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| Natgr_3018 | AFZ74152 | PAS domain S-box [Natronobacterium gregory... | CDD | UniProt | Pfam | InterPro | |
| Natgr_3339 | AFZ74463 | PAS domain S-box [Natronobacterium gregory... | CDD | UniProt | Pfam | InterPro | |

Natronococcus occultus SP4

| | | | | | | | |
|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HisK, no REC | | | | | | | |
| Natoc_0064 | AGB35946 | bacteriophytochrome (light-regulated signa... | CDD | UniProt | Pfam | InterPro | |
| Natoc_0123 | AGB36004 | bacteriophytochrome (light-regulated signa... | CDD | UniProt | Pfam | InterPro | |
| Natoc_0362 | AGB36227 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_0482 | AGB36345 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_0527 | AGB36389 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_0531 | AGB36393 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_0766 | AGB36623 | PAS/PAC sensor hybrid histidine kinase [Na... | CDD | UniProt | Pfam | InterPro | |
| Natoc_1623 | AGB37428 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_2617 | AGB38379 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_2674 | AGB38436 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_2836 | AGB38595 | bacteriophytochrome (light-regulated signa... | CDD | UniProt | Pfam | InterPro | |
| Natoc_2872 | AGB38630 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_3096 | AGB38839 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_3124 | AGB38865 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Natoc_3181 | AGB38920 | bacteriophytochrome (light-regulated signa.. | CDD | UniProt | Pfam | InterPro | |
| Natoc_3348 | AGB39081 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_3377 | AGB39109 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_3594 | AGB39312 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_3640 | AGB39356 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_3719 | AGB39434 | bacteriophytochrome (light-regulated signa.. | CDD | UniProt | Pfam | InterPro | |
| Natoc_3789 | AGB39498 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_3920 | AGB39618 | signal transduction histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro | |
| Natoc_4317 | AGB40007 | PAS domain S-box (plasmid) [Natronococcus ... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| Natoc_0500 | AGB36362 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| Natoc_0549 | AGB36411 | response regulator containing a CheY-like ... | CDD | UniProt | Pfam | InterPro | |
| Natoc_1460 | AGB37271 | response regulator containing a CheY-like ... | CDD | UniProt | Pfam | InterPro | |
| Natoc_1794 | AGB37592 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| Natoc_1795 | AGB37593 | CheY-like receiver domain-containing prote... | CDD | UniProt | Pfam | InterPro | |
| Natoc_2082 | AGB37868 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| Natoc_2174 | AGB37956 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| Natoc_2257 | AGB38035 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| Natoc_2423 | AGB38198 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| REC-HisK | | | | | | | |
| Natoc_0486 | AGB36348 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_2955 | AGB38710 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| REC-HalX | | | | | | | |
| Natoc_1303 | AGB37125 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| Natoc_1629 | AGB37434 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |
| BAT | | | | | | | |
| Natoc_0262 | AGB36137 | putative DNA binding protein [Natronococcu... | CDD | UniProt | Pfam | InterPro | |
| Natoc_0501 | AGB36363 | putative DNA binding protein [Natronococcu... | CDD | UniProt | Pfam | InterPro | |
| Natoc_1930 | AGB37720 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_3414 | AGB39146 | PAS domain S-box [Natronococcus occultus S... | CDD | UniProt | Pfam | InterPro | |
| Natoc_4318 | AGB40008 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | |

Natronomonas moolapensis 8.8.11

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|---------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| HisK, no REC | | | | | | | |
| Nmlp_1339 | CCQ35547 | histidine kinase [Natronomonas moolapensis... | CDD | UniProt | Pfam | InterPro | |
| Nmlp_1567 | CCQ35766 | histidine kinase [Natronomonas moolapensis... | CDD | UniProt | Pfam | InterPro | |
| Nmlp_1633 | CCQ35828 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro | |
| Nmlp_1636 | CCQ35831 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro | |
| Nmlp_1963 | CCQ36148 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro | |
| Nmlp_2197 | CCQ36372 | histidine kinase [Natronomonas moolapensis... | CDD | UniProt | Pfam | InterPro | |
| Nmlp_2234 | CCQ36406 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro | |
| Nmlp_2331 | CCQ36499 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro | |
| Nmlp_2493 | CCQ36659 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro | |
| Nmlp_2654 | CCQ36810 | histidine kinase [Natronomonas moolapensis... | CDD | UniProt | Pfam | InterPro | |
| Nmlp_2689 | CCQ36843 | taxis sensor histidine kinase CheA [Natron... | CDD | UniProt | Pfam | InterPro | |

| | | | | | | |
|--------------------|--------------------------|---|-----|-------------------------|----------------------|-------------------------------------|
| Nmlp_2838 | CCQ36988 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| Nmlp_2853 | CCQ37003 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| Nmlp_2854 | CCQ37004 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| Nmlp_2967 | CCQ37110 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3040 | CCQ37183 | histidine kinase [Natronomonas moolapensis... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3120 | CCQ37262 | histidine kinase [Natronomonas moolapensis... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3273 | CCQ37407 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3396 | CCQ37525 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3414 | CCQ37542 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3522 | CCQ37647 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3744 | CCQ37858 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3775 | CCQ37888 | histidine kinase [Natronomonas moolapensis... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3825 | CCQ37937 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Nmlp_3163 | CCQ37300 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3199 | CCQ37336 | response regulator CheY [Natronomonas mool... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3895 | CCQ38007 | response regulator CheY [Natronomonas mool... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| Nmlp_1112 | CCQ35323 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| Nmlp_1632 | CCQ35827 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| Nmlp_2277 | CCQ36447 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| Nmlp_2278 | CCQ36448 | receiver box histidine kinase [Natronomona... | CDD | UniProt | Pfam | InterPro |
| Nmlp_2339 | CCQ36507 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3142 | CCQ37280 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3362 | CCQ37491 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3385 | CCQ37514 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3506 | CCQ37631 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3933 | CCQ38044 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Nmlp_2688 | CCQ36842 | protein-glutamate methylesterase CheB [Nat... | CDD | UniProt | Pfam | InterPro |
| REC-PAS\GAF | | | | | | |
| Nmlp_2008 | CCQ36192 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3616 | CCQ37735 | receiver/sensor box protein [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| Nmlp_1999 | CCQ36183 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |
| Nmlp_2965 | CCQ37108 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3118 | CCQ37260 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |
| Nmlp_3223 | CCQ37360 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |
| REC-wHTH | | | | | | |
| Nmlp_3226 | CCQ37363 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro (REC-wHTH) |
| BAT | | | | | | |
| Nmlp_1294 | CCQ35503 | receiver/sensor/bat box HTH-10 family tran... | CDD | UniProt | Pfam | InterPro |
| Nmlp_1964 | CCQ36149 | receiver/sensor/bat box HTH-10 family tran... | CDD | UniProt | Pfam | InterPro |
| Nmlp_2653 | CCQ36809 | receiver/bat box HTH-10 family transcripti... | CDD | UniProt | Pfam | InterPro |
| Nmlp_2966 | CCQ37109 | receiver box HTH-10 family transcription r... | CDD | UniProt | Pfam | InterPro |
| Other RRs | | | | | | |
| Nmlp_2279 | CCQ36449 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro (CheF-REC) |

Natronomonas pharaonis DSM 2160

HisK, no REC

| | | | | | | |
|----------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| NP_0142A | CAI48162 | histidine kinase [Natronomonas pharaonis D... | CDD | UniProt | Pfam | InterPro |
| NP_0144A | CAI48163 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_0730A | CAI48456 | histidine kinase [Natronomonas pharaonis D... | CDD | UniProt | Pfam | InterPro |
| NP_1154A | CAI48668 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_1622A | CAI48902 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_1640A | CAI48911 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_1804A | CAI48993 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_1850A | CAI49016 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_1882A | CAI49032 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_1912A | CAI49047 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_2172A | CAI49177 | taxis sensor histidine kinase CheA [Natr... | CDD | UniProt | Pfam | InterPro |
| NP_2516A | CAI49349 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_2742A | CAI49462 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| NP_3356A | CAI49769 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_3536A | CAI49859 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_3752A | CAI49967 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_4606A | CAI50394 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_4696A | CAI50439 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_5274A | CAI50728 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_6064A | CAI50812 | sensor box histidine kinase (plasmid) [Nat... | CDD | UniProt | Pfam | InterPro |
| NP_6080A | CAI50820 | sensor box histidine kinase (plasmid) [Nat... | CDD | UniProt | Pfam | InterPro |
| NP_0090A | CAI48136 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_1506A | CAI48844 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP_1914A | CAI49048 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|---------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| NP0140A | CAI48161 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |
| NP0516A | CAI48349 | response regulator CheY [Natronomonas phar... | CDD | UniProt | Pfam | InterPro |
| NP0682A | CAI48432 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|-----------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| NP2102A | CAI49142 | response regulator CheY [Natronomonas phar... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| NP0138A | CAI48160 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| NP0188A | CAI48185 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| NP0622A | CAI48402 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| NP0626A | CAI48404 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| NP0862A | CAI48522 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| NP1912A | CAI49047 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP2656A | CAI49419 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| NP3458A | CAI49820 | receiver box histidine kinase [Natronomona... | CDD | UniProt | Pfam | InterPro |
| NP4696A | CAI50439 | sensor box histidine kinase [Natronomonas ... | CDD | UniProt | Pfam | InterPro |
| NP5120A | CAI50651 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| NP6028A | CAI50794 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| NP6202A | CAI50881 | receiver/sensor box histidine kinase [Natr... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| NP2174A | CAI49178 | protein-glutamate methylesterase CheB [Nat... | CDD | UniProt | Pfam | InterPro |
| REC-GAF | | | | | | |
| NP1846A | CAI49014 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |
| NP2716A | CAI49449 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |
| REC-HalX | | | | | | |
| NP0028A | CAI48105 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |
| NP2906A | CAI49544 | receiver box response regulator [Natronomo... | CDD | UniProt | Pfam | InterPro |
| BAT | | | | | | |
| NP0654A | CAI48418 | receiver/sensor/bat box HTH-10 family tran... | CDD | UniProt | Pfam | InterPro |

[Palaeococcus pacificus DY20341](#)

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|---------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| HisK, no REC | | | | | | |
| PAP_04520 | AIF69315 | hypothetical protein PAP_04520 [Palaeococc... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| PAP_04530 | AIF69317 | chemotaxis protein CheY [Palaeococcus paci... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| PAP_04525 | AIF69316 | hypothetical protein PAP_04525 [Palaeococc... | CDD | UniProt | Pfam | InterPro |

[Pyrococcus abyssi GE5](#)

| | | | | | | |
|---------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| HisK, no REC | | | | | | |
| PAB1332 | CAB50458 | cheA chemotaxis histidine kinase [Pyrococc... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| PAB1330 | CAB50460 | cheY chemotaxis response regulator [Pyroco... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| PAB1331 | CAB50459 | cheB protein-glutamate methylesterase [Pyr... | CDD | UniProt | Pfam | InterPro |

[Pyrococcus horikoshii OT3](#)

| | | | | | | |
|---------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| HisK, no REC | | | | | | |
| PH0484 | BAA29572 | 766aa long hypothetical histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| PH0482 | BAA29570 | 120aa long hypothetical chemotaxis protein... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| PH0483 | BAA29571 | 368aa long hypothetical protein-glutamate ... | CDD | UniProt | Pfam | InterPro |

[Pyrococcus kukulkanii](#)

| | | | | | | |
|---------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| HisK, no REC | | | | | | |
| TQ32_01480 | AMM53314 | histidine kinase [Pyrococcus kukulkanii] ... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| TQ32_01470 | AMM53312 | chemotaxis protein CheY [Pyrococcus kukulk... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| TQ32_01475 | AMM53313 | chemotaxis protein CheY [Pyrococcus kukulk... | CDD | UniProt | Pfam | InterPro |

[Pyrococcus sp. NA2](#)

| | | | | | | |
|---------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| HisK, no REC | | | | | | |
| PNA2_1134 | AEC52050 | histidine kinase (cheA) [Pyrococcus sp. NA... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| PNA2_1132 | AEC52048 | chemotaxis response regulator [Pyrococcus ... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| PNA2_1133 | AEC52049 | chemotaxis-specific methylesterase [Pyroco... | CDD | UniProt | Pfam | InterPro |

[Pyrococcus sp. ST04](#)

| | | | | | | |
|---------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|
| HisK, no REC | | | | | | |
| Py04_0537 | AFK22139 | chemotaxis histidine kinase [Pyrococcus sp... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Py04_0535 | AFK22137 | chemotaxis response regulator [Pyrococcus ... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Py04_0536 | AFK22138 | chemotaxis-specific methylesterase [Pyroco... | CDD | UniProt | Pfam | InterPro |

Pyrococcus yayanosii CHI

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| PYCH_15450 | AEH25211 | chemotaxis histidine kinase [Pyrococcus ya... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| PYCH_15430 | AEH25209 | chemotaxis response regulator [Pyrococcus ... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| PYCH_15440 | AEH25210 | chemotaxis-specific methylesterase [Pyroco... | CDD | UniProt | Pfam | InterPro |

Salinarchaeum sp. Harcht-Bsk1

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| L593_00155 | AGM99985 | signal-transducing histidine kinase [Salin... | CDD | UniProt | Pfam | InterPro |
| L593_00245 | AGN00004 | chemotaxis protein CheA [Salinarchaeum sp.... | CDD | UniProt | Pfam | InterPro |
| L593_00745 | AGN00104 | PAS domain S-box [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_01540 | AGN00261 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| L593_02555 | AGN00462 | histidine kinase [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_02640 | AGN00479 | CheA signal transduction histidine kinase ... | CDD | UniProt | Pfam | InterPro |
| L593_03370 | AGN00625 | HTR-like protein [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_03635 | AGN00678 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| L593_03980 | AGN00747 | signal-transducing histidine kinase [Salin... | CDD | UniProt | Pfam | InterPro |
| L593_04445 | AGN00840 | PAS/PAC sensor hybrid histidine kinase [Sa... | CDD | UniProt | Pfam | InterPro |
| L593_04515 | AGN00854 | histidine kinase [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_04535 | AGN00858 | HTR-like protein [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_04770 | AGN00903 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| L593_06165 | AGN01182 | redox sensing protein [Salinarchaeum sp. H... | CDD | UniProt | Pfam | InterPro |
| L593_08965 | AGN01738 | signal-transducing histidine kinase [Salin... | CDD | UniProt | Pfam | InterPro |
| L593_09630 | AGN01871 | GAF sensor signal transduction histidine k... | CDD | UniProt | Pfam | InterPro |
| L593_10955 | AGN02136 | PAS domain-containing protein [Salinarchae... | CDD | UniProt | Pfam | InterPro |
| L593_11925 | AGN02328 | light- and oxygen-sensing transcription re... | CDD | UniProt | Pfam | InterPro |
| L593_12315 | AGN02402 | histidine kinase [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_13520 | AGN02643 | pas domain s-box [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_14460 | AGN02831 | PAS domain S-box [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_14480 | AGN02835 | PAS sensor protein [Salinarchaeum sp. Harc... | CDD | UniProt | Pfam | InterPro |
| L593_14520 | AGN02843 | putative signal-transducing histidine kina... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| L593_02335 | AGN00418 | response regulator containing chey-like re... | CDD | UniProt | Pfam | InterPro |
| L593_00255 | AGN00006 | response regulator containing CheY-like re... | CDD | UniProt | Pfam | InterPro |

REC-HisK

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| L593_04230 | AGN00797 | multi-sensor signal transduction histidine... | CDD | UniProt | Pfam | InterPro |
| L593_05180 | AGN00985 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| L593_06385 | AGN01224 | Htr-like protein [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_07045 | AGN01356 | sensor box histidine kinase [Salinarchaeum... | CDD | UniProt | Pfam | InterPro |
| L593_07370 | AGN01419 | histidine kinase [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_10790 | AGN02103 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |
| L593_11575 | AGN02258 | HTR-like protein [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_12465 | AGN02432 | PAS domain S-box [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
| L593_14735 | AGN02881 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|-------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| L593_00250 | AGN00005 | chemotaxis-specific methylesterase [Salina... | CDD | UniProt | Pfam | InterPro |
| *L593_02645 | AGN00480 | chemotaxis-specific methylesterase [Salina... | CDD | UniProt | Pfam | InterPro |

REC-PAS

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| L593_03645 | AGN00680 | HTR-like protein [Salinarchaeum sp. Harcht... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC-HalX

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| L593_04530 | AGN00857 | response regulator receiver protein [Salin... | CDD | UniProt | Pfam | InterPro |
| L593_06565 | AGN01260 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| L593_11525 | AGN02248 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| L593_14935 | AGN02921 | HalX domain protein [Salinarchaeum sp. Har... | CDD | UniProt | Pfam | InterPro |

Other RRs

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|---------------------------------------|
| L593_02140 | AGN00379 | response regulator receiver protein [Salin... | CDD | UniProt | Pfam | InterPro (REC-HalOD2) |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|---------------------------------------|

Thermococcus barophilus

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| TBCH5v1_1428 | ALM75345 | chemotaxis histidine kinase [Thermococcu... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| TBCH5v1_1430 | ALM75347 | Chemotaxis protein CheY [Thermococcus ba... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| TBCH5v1_1429 | ALM75346 | Chemotaxis response regulator protein-gl... | CDD | UniProt | Pfam | InterPro |

Thermococcus eurythermalis

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| TEU_11690 | AIU70934 | histidine kinase [Thermococcus eurythermal... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| TEU_11680 | AIU70932 | chemotaxis protein CheY [Thermococcus eury... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| TEU_11685 | AIU70933 | chemotaxis protein CheY [Thermococcus eury... | CDD | UniProt | Pfam | InterPro |

[Thermococcus gammatolerans EJ3](#)

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| TGAM_1529 | ACS34031 | Chemotaxis histidine kinase (cheA) [Thermo... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| TGAM_1530 | ACS34032 | Chemotaxis response regulator (cheY) [Ther... | CDD | UniProt | Pfam | InterPro |

[Thermococcus guaymasensis DSM 11113](#)

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| X802_00465 | AJC70836 | histidine kinase [Thermococcus guaymasensi... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| X802_00470 | AJC70837 | chemotaxis protein CheY [Thermococcus guay... | CDD | UniProt | Pfam | InterPro |

[Thermococcus kodakarensis KOD1](#)

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| TK0635 | BAD84824 | chemotaxis histidine kinase, flame shift [... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| TK0632 | BAD84821 | chemotaxis response regulator [Thermococcu... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| TK0633 | BAD84822 | chemotaxis protein-glutamate methylestera... | CDD | UniProt | Pfam | InterPro |

[Thermococcus litoralis DSM 5473](#)

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| OCC_10424 | EHR77516 | cheA chemotaxis histidine kinase [Thermoco... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| OCC_10414 | EHR77514 | chemotaxis response regulator [Thermococcu... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| OCC_10419 | EHR77515 | chemotaxis-specific methylesterase [Thermo... | CDD | UniProt | Pfam | InterPro |

[Thermococcus nautili](#)

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| BD01_1162 | AHL22779 | Chemotaxis protein histidine kinase-relate... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| BD01_1160 | AHL22777 | CheY-like receiver [Thermococcus nautili] ... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| BD01_1161 | AHL22778 | Chemotaxis response regulator containing a... | CDD | UniProt | Pfam | InterPro |

[Thermococcus onnurineus NA1](#)

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| TON_1198 | ACJ16686 | cheA chemotaxis histidine kinase [Thermoco... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| TON_1196 | ACJ16684 | chemotaxis response regulator [Thermococcu... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| TON_1197 | ACJ16685 | cheB protein-glutamate methylesterase [The... | CDD | UniProt | Pfam | InterPro |

[Thermococcus sp. AM4](#)

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| TAM4_1755 | EEB74388 | Signal transduction histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| TAM4_1512 | EEB74145 | chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro |

[Thermococcus peptonophilus JCM 9653](#)

HisK, no REC

| | | | | | | |
|-----------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| A0127_00765 | AMQ17807 | chemotaxis rotein CheA [Thermococcus pept... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| A0127_00755 | AMQ17805 | two-component system response regulator [... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| A0127_00760 | AMQ17806 | chemotaxis response regulator protein-glu... | CDD | UniProt | Pfam | InterPro |

[Thermoplasmatales archaeon BRNA1](#)

Other RRs

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|---------------------------------------|
| TALC_00527 | AGI47527 | Response regulator containing CheY-like re... | CDD | UniProt | Pfam | InterPro (REC-DUF835) |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|---------------------------------------|

[unclassified Euryarchaeota](#)

[uncultured marine group II euryarchaeote](#)

REC only

| | | | | | | |
|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| MG2_0491 | EHR76079 | putative acetoacetate metabolism regulator... | CDD | UniProt | Pfam | InterPro |
|----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

Other RRs

| | | | | | | |
|----------|--------------------------|---|---------------------|-------------------------|----------------------|---|
| MG2_0171 | EHR75759 | putative Signal transduction response regu... | CDD | UniProt | Pfam | InterPro (low complexity) |
|----------|--------------------------|---|---------------------|-------------------------|----------------------|---|

MG2_0555 [EHR76143](#) putative CheY-like superfamily protein wit... [CDD](#) [UniProt](#) [Pfam](#) [InterPro](#) (no archaeal hits)

Thaumarchaeota

Candidatus Nitrocosmicus oleophilus strain MY3

HisK, no REC

| | | | | | | |
|-------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NMY3_00019 | ALI34233 | Sensor protein SrrB [Candidatus Nitrocosmi... | CDD | UniProt | Pfam | InterPro |
| NMY3_00141 | ALI34355 | Sensory/regulatory protein RpfC [Candidatu... | CDD | UniProt | Pfam | InterPro |
| NMY3_00302 | ALI34516 | Sensor histidine kinase TodS [Candidatus N... | CDD | UniProt | Pfam | InterPro |
| NMY3_00671 | ALI34880 | Sensor protein kinase WalK [Candidatus Nit... | CDD | UniProt | Pfam | InterPro |
| NMY3_00763 | ALI34972 | Sensory/regulatory protein RpfC [Candidatu... | CDD | UniProt | Pfam | InterPro |
| NMY3_00767 | ALI34976 | Sensor protein DivL [Candidatus Nitrocosmi... | CDD | UniProt | Pfam | InterPro |
| NMY3_00923 | ALI35130 | Signal transduction histidine-protein kina... | CDD | UniProt | Pfam | InterPro |
| NMY3_01369 | ALI35573 | Sensor protein SrrB [Candidatus Nitrocosmi... | CDD | UniProt | Pfam | InterPro |
| NMY3_01566 | ALI35769 | Phytochrome-like protein cph1 [Candidatus ... | CDD | UniProt | Pfam | InterPro |
| NMY3_01835 | ALI36038 | Non-motile and phage-resistance protein [C... | CDD | UniProt | Pfam | InterPro |
| NMY3_02176 | ALI36376 | Sensor protein SrrB [Candidatus Nitrocosmi... | CDD | UniProt | Pfam | InterPro |
| NMY3_02759 | ALI36949 | Non-motile and phage-resistance protein [C... | CDD | UniProt | Pfam | InterPro |
| NMY3_02849 | ALI37038 | Alkaline phosphatase synthesis sensor prot... | CDD | UniProt | Pfam | InterPro |
| NMY3_02960 | ALI37147 | Sensor protein SrrB [Candidatus Nitrocosmi... | CDD | UniProt | Pfam | InterPro |
| NMY3_02973 | ALI37160 | Alkaline phosphatase synthesis sensor prot... | CDD | UniProt | Pfam | InterPro |
| NMY3_02978 | ALI37165 | Sensor histidine kinase YycG [Candidatus N... | CDD | UniProt | Pfam | InterPro |
| NMY3_03253 | ALI37438 | Alkaline phosphatase synthesis sensor prot... | CDD | UniProt | Pfam | InterPro |
| NMY3_03423 | ALI37606 | Alkaline phosphatase synthesis sensor prot... | CDD | UniProt | Pfam | InterPro |
| NMY3_03614 | ALI37796 | Alkaline phosphatase synthesis sensor prot... | CDD | UniProt | Pfam | InterPro |
| NMY3_03758 | ALI37939 | Non-motile and phage-resistance protein [C... | CDD | UniProt | Pfam | InterPro |
| *NMY3_01774 | ALI35977 | Virulence sensor protein BvgS precursor [C... | CDD | UniProt | Pfam | InterPro |
| NMY3_01775 | ALI35978 | Sensor protein FixL [Candidatus Nitrocosmi... | CDD | UniProt | Pfam | InterPro |

Hybrid HisK

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NMY3_00894 | ALI35103 | Aerobic respiration control sensor protein... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

REC only

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NMY3_00001 | ALI34215 | Response regulator SaeR [Candidatus Nitroc... | CDD | UniProt | Pfam | InterPro |
| NMY3_00010 | ALI34224 | C4-dicarboxylate transport transcriptional... | CDD | UniProt | Pfam | InterPro |
| NMY3_00095 | ALI34309 | Blue-light-activated protein [Candidatus N... | CDD | UniProt | Pfam | InterPro |
| NMY3_00311 | ALI34525 | Alkaline phosphatase synthesis transcripti... | CDD | UniProt | Pfam | InterPro |
| NMY3_00699 | ALI34908 | hypothetical protein NMY3_00699 [Candidatu... | CDD | UniProt | Pfam | InterPro |
| NMY3_00764 | ALI34973 | Response regulator MprA [Candidatus Nitroc... | CDD | UniProt | Pfam | InterPro |
| NMY3_00922 | ALI35129 | Response regulator ArlR [Candidatus Nitroc... | CDD | UniProt | Pfam | InterPro |
| NMY3_01534 | ALI35737 | Alkaline phosphatase synthesis transcripti... | CDD | UniProt | Pfam | InterPro |
| NMY3_01702 | ALI35905 | Sporulation initiation phosphotransferase ... | CDD | UniProt | Pfam | InterPro |
| NMY3_01845 | ALI36048 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro |
| NMY3_02193 | ALI36393 | Sensory transduction protein regX3 [Candid... | CDD | UniProt | Pfam | InterPro |
| NMY3_02760 | ALI36950 | DNA-binding response regulator MtrA [Candi... | CDD | UniProt | Pfam | InterPro |
| NMY3_02970 | ALI37157 | Sensor histidine kinase RcsC [Candidatus N... | CDD | UniProt | Pfam | InterPro |
| NMY3_03013 | ALI37200 | C4-dicarboxylate transport transcriptional... | CDD | UniProt | Pfam | InterPro |
| NMY3_03255 | ALI37440 | Transcriptional regulatory protein ZraR [C... | CDD | UniProt | Pfam | InterPro |
| NMY3_03566 | ALI37748 | Chemotaxis protein CheY [Candidatus Nitroc... | CDD | UniProt | Pfam | InterPro |

ACyc-REC

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NMY3_00724 | ALI34933 | C4-dicarboxylate transport transcriptional... | CDD | UniProt | Pfam | InterPro |
| NMY3_00765 | ALI34974 | Transcriptional regulatory protein ZraR [C... | CDD | UniProt | Pfam | InterPro |
| NMY3_00775 | ALI34984 | C4-dicarboxylate transport transcriptional... | CDD | UniProt | Pfam | InterPro |
| NMY3_03427 | ALI37610 | Transcriptional regulatory protein CssR [C... | CDD | UniProt | Pfam | InterPro |

REC-NTPase

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NMY3_02059 | ALI36260 | hypothetical protein NMY3_02059 [Candidatu... | CDD | UniProt | Pfam | InterPro |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

Other RRs

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|---|
| NMY3_00895 | ALI35104 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro (no archaeal hits) |
| NMY3_01832 | ALI36035 | Cell cycle response regulator CtrA [Candid... | CDD | UniProt | Pfam | InterPro (no archaeal hits) |
| NMY3_03599 | ALI37781 | Response regulator receiver domain protein... | CDD | UniProt | Pfam | InterPro (no archaeal hits) |

Candidatus Nitrosoarchaeum limnia SFB1

HisK, no REC

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| Nlim_0130 | EGG42944 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_0172 | EGG42942 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_0457 | EGG42645 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_0468 | EGG42656 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_0477 | EGG42665 | Chemotaxis protein histidine kinase [Candi... | CDD | UniProt | Pfam | InterPro |
| Nlim_0502 | EGG42617 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_0503 | EGG42618 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_0706 | EGG42525 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_0741 | EGG42560 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_1060 | EGG42045 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_1130 | EGG42005 | histidine kinase [Candidatus Nitrosoarchae... | CDD | UniProt | Pfam | InterPro |

| | | | | | | |
|------------------|--------------------------|---|---------------------|-------------------------|----------------------|--|
| Nlim_1227 | EGG41993 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_1312 | EGG41788 | histidine kinase [Candidatus Nitrosoarchae... | CDD | UniProt | Pfam | InterPro |
| Nlim_1675 | EGG41515 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_1676 | EGG41516 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| Nlim_1743 | EGG41451 | histidine kinase [Candidatus Nitrosoarchae... | CDD | UniProt | Pfam | InterPro |
| REC only | | | | | | |
| Nlim_0096 | EGG43046 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0228 | EGG42918 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro |
| Nlim_0417 | EGG42704 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0466 | EGG42654 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0467 | EGG42655 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0469 | EGG42657 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0472 | EGG42660 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0499 | EGG42614 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0739 | EGG42558 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0779 | EGG42334 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0780 | EGG42335 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0781 | EGG42336 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0783 | EGG42338 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0784 | EGG42339 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0785 | EGG42340 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro |
| Nlim_0839 | EGG42193 | Hypothetical protein Nlim_0839 [Candidatus... | CDD | UniProt | Pfam | InterPro |
| Nlim_0841 | EGG42195 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0842 | EGG42196 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0847 | EGG42201 | Chemotaxis response regulator [Candidatus ... | CDD | UniProt | Pfam | InterPro |
| Nlim_0862 | EGG42216 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_0894 | EGG42248 | Hypothetical protein Nlim_0894 [Candidatus... | CDD | UniProt | Pfam | InterPro |
| Nlim_0912 | EGG42266 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_1129 | EGG42004 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro |
| Nlim_1313 | EGG41789 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro |
| Nlim_1378 | EGG41761 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro |
| Nlim_1744 | EGG41452 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro |
| *Nlim_0460 | EGG42648 | Hypothetical protein Nlim_0460 [Candidatus... | CDD | UniProt | Pfam | InterPro |
| *Nlim_0838 | EGG42192 | Hypothetical protein Nlim_0838 [Candidatus... | CDD | UniProt | Pfam | InterPro |
| TrmB-REC | | | | | | |
| Nlim_0171 | EGG42941 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro |
| REC-CheB | | | | | | |
| Nlim_0478 | EGG42666 | Chemotaxis response regulator [Candidatus ... | CDD | UniProt | Pfam | InterPro |
| REC-HisK | | | | | | |
| Nlim_0782 | EGG42337 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| TPR-REC | | | | | | |
| Nlim_0076 | EGG43026 | Hypothetical protein Nlim_0076 [Candidatus... | CDD | UniProt | Pfam | InterPro (TPR-TPR-TPR-REC) |
| Other RRs | | | | | | |
| Nlim_0427 | EGG42714 | CheY-like receiver [Candidatus Nitrosoarch... | CDD | UniProt | Pfam | InterPro (REC-TackOD1) |

Candidatus Nitrosopumilus adriaticus

HisK, no REC

| | | | | | | |
|---------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NADRNF5_0257 | AJW69956 | PAS/PAC sensor signal transduction histi... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_0796 | AJW70490 | ATPase/histidine kinase/DNA gyrase B/HSP... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_0803 | AJW70497 | chemotaxis sensor histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_0830 | AJW70524 | Signal transduction histidine kinase [Ca... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_0838 | AJW70532 | ATPase/histidine kinase/DNA gyrase B/HSP... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_0876 | AJW70570 | ATPase/histidine kinase/DNA gyrase B/HSP... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_0915 | AJW70609 | Signal transduction histidine kinase [Ca... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_0932 | AJW70626 | PAS domain S-box [Candidatus Nitrosopumi... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1098 | AJW70788 | Histidine kinase [Candidatus Nitrosopumi... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1201 | AJW70889 | ATPase/histidine kinase/DNA gyrase B/HSP... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1294 | AJW70980 | putative Histidine kinase [Candidatus Ni... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1555 | AJW71236 | Signal transduction histidine kinase [Ca... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1608 | AJW71289 | Sensor protein [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1610 | AJW71291 | putative Histidine kinase [Candidatus Ni... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1612 | AJW71293 | Histidine kinase [Candidatus Nitrosopumi... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1796 | AJW71474 | Histidine kinase [Candidatus Nitrosopumi... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1806 | AJW71484 | Histidine kinase [Candidatus Nitrosopumi... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1813 | AJW71491 | ATPase/histidine kinase/DNA gyrase B/HSP... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1815 | AJW71493 | putative Histidine kinase [Candidatus Ni... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1875 | AJW71553 | putative Histidine kinase [Candidatus Ni... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_2062 | AJW71736 | Histidine kinase [Candidatus Nitrosopumi... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_1631 | AJW71311 | Sensor protein ZraS [Candidatus Nitrosop... | CDD | UniProt | Pfam | InterPro |
| *NADRNF5_1632 | AJW71312 | membrane protein of unknown function [Ca... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|--------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NADRNF5_0878 | AJW70572 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_0520 | AJW70216 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_0800 | AJW70494 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_0760 | AJW70454 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_2087 | AJW71760 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_2089 | AJW71762 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro |
| NADRNF5_2061 | AJW71735 | Response regulator receiver domain prote... | CDD | UniProt | Pfam | InterPro |

| | | | | | | | |
|------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|-------------------|
| NADRN5_1807 | AJW71485 | Response regulator receiver protein [Can... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_1798 | AJW71476 | Response regulator receiver protein [Can... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_1840 | AJW71518 | Response regulator receiver protein [Can... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_0264 | AJW69962 | Response regulator receiver protein [Can... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_0795 | AJW70489 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_1039 | AJW70730 | Response regulator receiver protein [Can... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_0825 | AJW70519 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_0797 | AJW70491 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_0694 | AJW70389 | Response regulator receiver domain prote... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_1404 | AJW71089 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_0397 | AJW70093 | hypothetical protein NADRN5_0397 [Candi... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_0794 | AJW70488 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_1609 | AJW71290 | Response regulator receiver protein [Can... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_1887 | AJW71565 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_0258 | AJW69957 | response regulator receiver protein [Can... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_0844 | AJW70538 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_0831 | AJW70525 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_1402 | AJW71087 | Response regulator receiver protein (mod... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_1099 | AJW70789 | Response regulator receiver protein [Can... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_1293 | AJW70979 | putative Response regulator receiver pro... | CDD | UniProt | Pfam | InterPro | |
| NADRN5_2088 | AJW71761 | chemotaxis response regulator protein-gl... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| NADRN5_0804 | AJW70498 | chemotaxis response regulator protein-gl... | CDD | UniProt | Pfam | InterPro | |
| TrmB-REC | | | | | | | |
| NADRN5_1556 | AJW71237 | Response regulator receiver protein [Can... | CDD | UniProt | Pfam | InterPro | |
| TPR-REC | | | | | | | |
| NADRN5_1661 | AJW71341 | Response regulator receiver and ANTAR do... | CDD | UniProt | Pfam | InterPro | (TPR-TPR-TPR-REC) |
| Other RRs | | | | | | | |
| NADRN5_1202 | AJW70890 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro | (unique) |
| NADRN5_1240 | AJW70928 | Response regulator receiver domain prote... | CDD | UniProt | Pfam | InterPro | (FeS domain) |
| NADRN5_1333 | AJW71019 | Response regulator receiver domain prote... | CDD | UniProt | Pfam | InterPro | (FeS domain) |

Candidatus Nitrosopumilus koreensis ARI

HisK, no REC

| | | | | | | | |
|-------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|--|
| NKOR_00745 | AFS80067 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro | |
| NKOR_01745 | AFS80255 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro | |
| NKOR_02260 | AFS80352 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro | |
| NKOR_03025 | AFS80499 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_04865 | AFS80859 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_05185 | AFS80923 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro | |
| NKOR_05930 | AFS81069 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro | |
| *NKOR_05935 | AFS81070 | hypothetical protein NKOR_05935 [Candidatu... | CDD | UniProt | Pfam | InterPro | |
| NKOR_05970 | AFS81077 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_06145 | AFS81110 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro | |
| NKOR_06360 | AFS81151 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro | |
| NKOR_07465 | AFS81354 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_08145 | AFS81490 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro | |

REC only

| | | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|--|
| NKOR_00740 | AFS80066 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_01775 | AFS80261 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_01875 | AFS80281 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_02265 | AFS80353 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_03020 | AFS80498 | response regulator receiver modulated digu... | CDD | UniProt | Pfam | InterPro | |
| NKOR_04860 | AFS80858 | protein MprA [Candidatus Nitrosopumilus ko... | CDD | UniProt | Pfam | InterPro | |
| NKOR_05945 | AFS81072 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_05965 | AFS81076 | response regulator [Candidatus Nitrosopumi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_06350 | AFS81149 | two-component response regulator involved ... | CDD | UniProt | Pfam | InterPro | |
| NKOR_07460 | AFS81353 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_08150 | AFS81491 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | |
| NKOR_08810 | AFS81613 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | |

TPR-REC

| | | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|--|
| NKOR_02705 | AFS80435 | response regulator receiver and ANTAR doma... | CDD | UniProt | Pfam | InterPro | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|--|

Other RRs

| | | | | | | | |
|------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|---------------|
| NKOR_04960 | AFS80878 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro | (NitrOD4-REC) |
| NKOR_04565 | AFS80801 | hypothetical protein NKOR_04565 [Candidatu... | CDD | UniProt | Pfam | InterPro | (REC-TackOD1) |

Candidatus Nitrosopumilus piranensis

HisK, no REC

| | | | | | | | |
|--------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|--|
| NPIRD3C_1703 | AJM92915 | putative Histidine kinase [Candidatus Ni... | CDD | UniProt | Pfam | InterPro | |
| NPIRD3C_1833 | AJM93043 | putative Histidine kinase [Candidatus Ni... | CDD | UniProt | Pfam | InterPro | |

REC only

| | | | | | | | |
|---------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|--|
| NPIRD3C_1061 | AJM92273 | putative chemotaxis response regulator r... | CDD | UniProt | Pfam | InterPro | |
| *NPIRD3C_0946 | AJM92158 | Sensor histidine kinase/response regulat... | CDD | UniProt | Pfam | InterPro | |

Other RRs

| | | | | | | | |
|--------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|--------------------|
| NPIRD3C_1834 | AJM93044 | hypothetical protein NPIRD3C_1834 [Candi... | CDD | UniProt | Pfam | InterPro | (no archaeal hits) |
| NPIRD3C_0940 | AJM92152 | conserved membrane protein of unknown fu... | CDD | UniProt | Pfam | InterPro | (RhaT/EamA-REC) |

Candidatus Nitrosopumilus sediminis

HisK, no REC

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NSED_00425 | AFS81897 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro |
| NSED_04350 | AFS82676 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro |
| NSED_04820 | AFS82768 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| NSED_05770 | AFS82956 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro |
| NSED_06180 | AFS83038 | integral membrane sensor signal transducti... | CDD | UniProt | Pfam | InterPro |
| NSED_06525 | AFS83105 | histidine kinase [Candidatus Nitrosopumilu... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|-------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NSED_00420 | AFS81896 | two component sigma54 specific Fis family ... | CDD | UniProt | Pfam | InterPro |
| NSED_04815 | AFS82767 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro |
| NSED_05350 | AFS82874 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro |
| NSED_06170 | AFS83036 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro |
| NSED_08760 | AFS83544 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro |
| *NSED_00495 | AFS81911 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro |

TPR-REC

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|-------------------|
| NSED_02635 | AFS82335 | two-component response regulator KdpE [Can... | CDD | UniProt | Pfam | InterPro | (TPR-TPR-TPR-REC) |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|-------------------|

Other RRs

| | | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|---------------|
| NSED_03545 | AFS82515 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | (REC-NitrOD1) |
| NSED_04940 | AFS82792 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | (REC-NitrOD1) |
| NSED_05360 | AFS82876 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | (REC-NitrOD1) |
| NSED_05820 | AFS82966 | response regulator receiver protein [Candi... | CDD | UniProt | Pfam | InterPro | (REC-NitrOD1) |

Candidatus Nitrososphaera evergladensis SR1

HisK, no REC

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NTE_00160 | AIF82242 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_00201 | AIF82283 | histidine kinase [Candidatus Nitrososphaer... | CDD | UniProt | Pfam | InterPro |
| NTE_00233 | AIF82315 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_00338 | AIF82420 | histidine kinase [Candidatus Nitrososphaer... | CDD | UniProt | Pfam | InterPro |
| NTE_00370 | AIF82452 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_00468 | AIF82550 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_00852 | AIF82928 | PAS domain S-box [Candidatus Nitrososphaer... | CDD | UniProt | Pfam | InterPro |
| NTE_01052 | AIF83125 | histidine kinase [Candidatus Nitrososphaer... | CDD | UniProt | Pfam | InterPro |
| NTE_01439 | AIF83503 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_01471 | AIF83535 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_01492 | AIF83555 | histidine kinase [Candidatus Nitrososphaer... | CDD | UniProt | Pfam | InterPro |
| NTE_01496 | AIF83559 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_01820 | AIF83880 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_01927 | AIF83986 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_02123 | AIF84178 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_02155 | AIF84209 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_02334 | AIF84387 | signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro |
| NTE_02348 | AIF84400 | chemotaxis protein histidine kinase-like p... | CDD | UniProt | Pfam | InterPro |
| NTE_02940 | AIF84976 | PAS domain S-box [Candidatus Nitrososphaer... | CDD | UniProt | Pfam | InterPro |

REC only

| | | | | | | |
|------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NTE_00090 | AIF82174 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| NTE_00162 | AIF82244 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| NTE_00195 | AIF82277 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| NTE_00356 | AIF82438 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| NTE_00851 | AIF82927 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| NTE_01320 | AIF83388 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| NTE_01491 | AIF83554 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| NTE_01926 | AIF83985 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| NTE_02124 | AIF84179 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| NTE_02333 | AIF84386 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| NTE_02346 | AIF84398 | response regulator containing CheY-like re... | CDD | UniProt | Pfam | InterPro |
| NTE_02941 | AIF84977 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
| *NTE_00211 | AIF82293 | hypothetical protein NTE_00211 [Candidatus... | CDD | UniProt | Pfam | InterPro |

REC-CheB

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NTE_02347 | AIF84399 | chemotaxis response regulator containing a... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

ACyc-REC

| | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|
| NTE_01493 | AIF83556 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|

wHTH-REC

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------|
| NTE_01494 | AIF83557 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | (wHTH-REC) |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|------------|

Other RRs

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|---------------|
| NTE_00171 | AIF82253 | response regulator containing CheY-like re... | CDD | UniProt | Pfam | InterPro | (REC-NitrOD2) |
| NTE_00257 | AIF82339 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | (REC-TackOD1) |
| NTE_00367 | AIF82449 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | (REC-NitrOD2) |
| NTE_01443 | AIF83507 | response regulator with CheY-like receiver... | CDD | UniProt | Pfam | InterPro | (NitrOD3-REC) |

Candidatus Nitrososphaera gargensis Ga9.2

HisK, no REC

| | | | | | | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|
| Ngar_c08540 | AFU57796 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro |
| Ngar_c08680 | AFU57810 | signal transduction histidine kinase, wit... | CDD | UniProt | Pfam | InterPro |
| Ngar_c08700 | AFU57812 | signal transduction histidine kinase, wit... | CDD | UniProt | Pfam | InterPro |

| | | | | | | | |
|------------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|----------------|
| Ngar_c08930 | AFU57835 | signal transduction histidine kinase, wit... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c09690 | AFU57911 | signal transduction histidine kinase, wit... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c09970 | AFU57939 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c10180 | AFU57960 | chemotactic sensor histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c12530 | AFU58193 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c21530 | AFU59083 | signal transduction histidine kinase, wit... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c22010 | AFU59131 | signal transduction histidine kinase, wit... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c22090 | AFU59139 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c24800 | AFU59402 | signal transduction histidine kinase, wit... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c24860 | AFU59408 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c27670 | AFU59688 | signal transduction histidine kinase, wit... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c28690 | AFU59788 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c31260 | AFU60042 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c32750 | AFU60190 | signal transduction histidine kinase, wit... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c33320 | AFU60247 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c33500 | AFU60265 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| Ngar_c00050 | AFU56955 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c02520 | AFU57200 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c02740 | AFU57222 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c08410 | AFU57783 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c08520 | AFU57794 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c08880 | AFU57830 | putative two component transcriptional re... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c10200 | AFU57962 | chemotaxis response regulator CheY [Candi... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c10570 | AFU57999 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c10640 | AFU58006 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c13050 | AFU58243 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c13380 | AFU58276 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c14130 | AFU58349 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c16500 | AFU58583 | response regulatory domain-containing pro... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c22000 | AFU59130 | putative response regulator receiver prot... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c22510 | AFU59181 | hypothetical protein Ngar_c22510 [Candida... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c24870 | AFU59409 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c25990 | AFU59521 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c26590 | AFU59580 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c27650 | AFU59686 | hypothetical protein Ngar_c27650 [Candida... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c28680 | AFU59787 | hypothetical protein Ngar_c28680 [Candida... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c28750 | AFU59794 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c28870 | AFU59806 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c28890 | AFU59808 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c33330 | AFU60248 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c33950 | AFU60310 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| *Ngar_c04310 | AFU57378 | hypothetical protein Ngar_c04310 [Candida... | CDD | UniProt | Pfam | InterPro | |
| *Ngar_c04320 | AFU57379 | signal receiver domain-containing protein... | CDD | UniProt | Pfam | InterPro | |
| *Ngar_c08390 | AFU57781 | putative response regulator receiver prot... | CDD | UniProt | Pfam | InterPro | |
| *Ngar_c11730 | AFU58113 | putative short signal transduction respon... | CDD | UniProt | Pfam | InterPro | |
| *Ngar_c12540 | AFU58194 | putative short signal transduction respon... | CDD | UniProt | Pfam | InterPro | |
| *Ngar_c18900 | AFU58822 | response regulatory domain-containing pro... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| Ngar_c10190 | AFU57961 | chemotaxis response regulator methylester... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | |
| Ngar_c08720 | AFU57814 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | (NitrOD3-REC) |
| Ngar_c21520 | AFU59082 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| Ngar_c21780 | AFU59108 | hypothetical protein Ngar_c21780 [Candida... | CDD | UniProt | Pfam | InterPro | (MEDS-REC) |
| Ngar_c27680 | AFU59689 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | (Ser-rich-REC) |
| Ngar_c33150 | AFU60230 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | (Ser-rich-REC) |
| *Ngar_c10040 | AFU57946 | putative response regulator receiver [Can... | CDD | UniProt | Pfam | InterPro | |
| *Ngar_c33200 | AFU60235 | putative response regulator receiver [Can... | CDD | UniProt | Pfam | InterPro | |

Candidatus Nitrosotalea devanaterrea

HisK, no REC

| | | | | | | | |
|-----------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|--|
| NDEV_0432 | CUR51197 | putative Histidine kinase [Candidatus Nitr... | CDD | UniProt | Pfam | InterPro | |
| NDEV_0725 | CUR51490 | putative Histidine kinase [Candidatus Nitr... | CDD | UniProt | Pfam | InterPro | |
| NDEV_0741 | CUR51506 | ATPase/histidine kinase/DNA gyrase B/HSP90... | CDD | UniProt | Pfam | InterPro | |
| NDEV_0999 | CUR51764 | Chemotaxis histidine kinase CheA [Candidat... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1007 | CUR51772 | putative Histidine kinase [Candidatus Nitr... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1010 | CUR51775 | putative Histidine kinase [Candidatus Nitr... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1385 | CUR52150 | putative Histidine kinase [Candidatus Nitr... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1408 | CUR52173 | Histidine kinase [Candidatus Nitrosotalea ... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1419 | CUR52184 | PAS domain S-box (modular protein) [Candid... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1454 | CUR52219 | Putative PAS/PAC sensor histidine kinase [... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1455 | CUR52220 | K+ channel signal transduction histidine k... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1499 | CUR52264 | Signal transduction histidine kinase, with... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1508 | CUR52273 | putative Histidine kinase [Candidatus Nitr... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1531 | CUR52296 | putative signal transduction histidine kin... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1535 | CUR52300 | putative Histidine kinase [Candidatus Nitr... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1571 | CUR52333 | putative Histidine kinase [Candidatus Nitr... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1706 | CUR52468 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro | |

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|------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|-------------------|
| NDEV_1717 | CUR52479 | Signal transduction histidine kinase [Cand... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1773 | CUR52535 | putative Histidine kinase [Candidatus Nitr... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| NDEV_0249 | CUR51014 | CheY-like receiver [Candidatus Nitrosotale... | CDD | UniProt | Pfam | InterPro | |
| NDEV_0433 | CUR51198 | CheY-like receiver [Candidatus Nitrosotale... | CDD | UniProt | Pfam | InterPro | |
| NDEV_0649 | CUR51414 | CheY-like receiver [Candidatus Nitrosotale... | CDD | UniProt | Pfam | InterPro | |
| NDEV_0739 | CUR51504 | Chemotaxis protein CheY [Candidatus Nitro... | CDD | UniProt | Pfam | InterPro | |
| NDEV_0981 | CUR51746 | CheY-like receiver [Candidatus Nitrosotale... | CDD | UniProt | Pfam | InterPro | |
| NDEV_0997 | CUR51762 | Chemotaxis response regulator CheY [Candid... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1002 | CUR51767 | Protein CcdB [Candidatus Nitrosotalea deva... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1009 | CUR51774 | Putative chemotaxis response regulator Che... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1011 | CUR51776 | CheY-like receiver [Candidatus Nitrosotale... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1012 | CUR51777 | CheY-like receiver [Candidatus Nitrosotale... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1015 | CUR51780 | CheY-like receiver [Candidatus Nitrosotale... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1076 | CUR51841 | CheY-like receiver [Candidatus Nitrosotale... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1395 | CUR52160 | CheY-like receiver [Candidatus Nitrosotale... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1422 | CUR52187 | CheY-like receiver [Candidatus Nitrosotale... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1457 | CUR52222 | K+ channel signal transduction response re... | CDD | UniProt | Pfam | InterPro | |
| NDEV_1500 | CUR52265 | putative signal transduction response regu... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| NDEV_0998 | CUR51763 | Chemotaxis response regulator protein-glut... | CDD | UniProt | Pfam | InterPro | |
| TPR-REC | | | | | | | |
| NDEV_0516 | CUR51281 | conserved protein of unknown function [Can... | CDD | UniProt | Pfam | InterPro | (TPR-TPR-TPR-REC) |
| Other RRs | | | | | | | |
| NDEV_0738 | CUR51503 | conserved protein of unknown function [Can... | CDD | UniProt | Pfam | InterPro | (REC-TackOD1) |

Candidatus Nitrosotenuis cloacae strain SAT1

| | | | | | | | |
|---------------------|--------------------------|--|-----|-------------------------|----------------------|--------------------------|-------------------|
| HisK, no REC | | | | | | | |
| SU86_000030 | AJZ76515 | hypothetical protein SU86_000030 [Candida... | CDD | UniProt | Pfam | InterPro | |
| SU86_000945 | AJZ75188 | histidine kinase [Candidatus Nitrosotenui... | CDD | UniProt | Pfam | InterPro | |
| SU86_001160 | AJZ75220 | hypothetical protein SU86_001160 [Candida... | CDD | UniProt | Pfam | InterPro | |
| SU86_001735 | AJZ76557 | hypothetical protein SU86_001735 [Candida... | CDD | UniProt | Pfam | InterPro | |
| SU86_001905 | AJZ76565 | hypothetical protein SU86_001905 [Candida... | CDD | UniProt | Pfam | InterPro | |
| SU86_008670 | AJZ76744 | hypothetical protein SU86_008670 [Candida... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| SU86_002750 | AJZ76586 | hypothetical protein SU86_002750 [Candida... | CDD | UniProt | Pfam | InterPro | |
| SU86_005490 | AJZ75909 | chemotaxis protein CheY [Candidatus Nitro... | CDD | UniProt | Pfam | InterPro | |
| SU86_002825 | AJZ75489 | hypothetical protein SU86_002825 [Candida... | CDD | UniProt | Pfam | InterPro | |
| SU86_002745 | AJZ75477 | chemotaxis protein CheY [Candidatus Nitro... | CDD | UniProt | Pfam | InterPro | |
| SU86_002475 | AJZ75439 | hypothetical protein SU86_002475 [Candida... | CDD | UniProt | Pfam | InterPro | |
| SU86_001625 | AJZ75300 | hypothetical protein SU86_001625 [Candida... | CDD | UniProt | Pfam | InterPro | |
| SU86_001485 | AJZ75276 | chemotaxis protein CheY [Candidatus Nitro... | CDD | UniProt | Pfam | InterPro | |
| SU86_000955 | AJZ75189 | chemotaxis protein CheY [Candidatus Nitro... | CDD | UniProt | Pfam | InterPro | |
| SU86_000455 | AJZ75113 | histidine kinase [Candidatus Nitrosotenui... | CDD | UniProt | Pfam | InterPro | |
| SU86_000325 | AJZ75092 | hypothetical protein SU86_000325 [Candida... | CDD | UniProt | Pfam | InterPro | |
| SU86_001310 | AJZ75247 | hypothetical protein SU86_001310 [Candida... | CDD | UniProt | Pfam | InterPro | |
| SU86_002590 | AJZ75453 | hypothetical protein SU86_002590 [Candida... | CDD | UniProt | Pfam | InterPro | |
| REC-CheB | | | | | | | |
| SU86_005520 | AJZ76668 | chemotaxis protein [Candidatus Nitrosoten... | CDD | UniProt | Pfam | InterPro | |
| TPR-REC | | | | | | | |
| SU86_003460 | AJZ75585 | hypothetical protein SU86_003460 [Candida... | CDD | UniProt | Pfam | InterPro | (TPR-TPR-TPR-REC) |
| Other RRs | | | | | | | |
| SU86_000960 | AJZ75190 | hypothetical protein SU86_000960 [Candida... | CDD | UniProt | Pfam | InterPro | (REC-TackOD1) |

Nitrosopumilus maritimus SCM1

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|---------------------|--------------------------|---|-----|-------------------------|----------------------|--------------------------|--|
| HisK, no REC | | | | | | | |
| Nmar_0189 | ABX12085 | histidine kinase [Nitrosopumilus maritimus... | CDD | UniProt | Pfam | InterPro | |
| Nmar_0249 | ABX12145 | histidine kinase [Nitrosopumilus maritimus... | CDD | UniProt | Pfam | InterPro | |
| Nmar_0372 | ABX12268 | histidine kinase [Nitrosopumilus maritimus... | CDD | UniProt | Pfam | InterPro | |
| Nmar_0460 | ABX12356 | histidine kinase [Nitrosopumilus maritimus... | CDD | UniProt | Pfam | InterPro | |
| Nmar_0556 | ABX12452 | histidine kinase [Nitrosopumilus maritimus... | CDD | UniProt | Pfam | InterPro | |
| Nmar_0656 | ABX12552 | histidine kinase [Nitrosopumilus maritimus... | CDD | UniProt | Pfam | InterPro | |
| Nmar_0920 | ABX12816 | histidine kinase [Nitrosopumilus maritimus... | CDD | UniProt | Pfam | InterPro | |
| Nmar_1076 | ABX12972 | putative sensor with HAMP domain [Nitrosop... | CDD | UniProt | Pfam | InterPro | |
| Nmar_1207 | ABX13103 | histidine kinase [Nitrosopumilus maritimus... | CDD | UniProt | Pfam | InterPro | |
| Nmar_1247 | ABX13143 | histidine kinase [Nitrosopumilus maritimus... | CDD | UniProt | Pfam | InterPro | |
| Nmar_1299 | ABX13195 | PAS/PAC sensor signal transduction histidi... | CDD | UniProt | Pfam | InterPro | |
| Nmar_1440 | ABX13336 | histidine kinase [Nitrosopumilus maritimus... | CDD | UniProt | Pfam | InterPro | |
| REC only | | | | | | | |
| Nmar_0251 | ABX12147 | response regulator receiver protein [Nitro... | CDD | UniProt | Pfam | InterPro | |
| Nmar_0376 | ABX12272 | response regulator receiver protein [Nitro... | CDD | UniProt | Pfam | InterPro | |
| Nmar_0452 | ABX12348 | response regulator receiver protein [Nitro... | CDD | UniProt | Pfam | InterPro | |
| Nmar_0465 | ABX12361 | response regulator receiver protein [Nitro... | CDD | UniProt | Pfam | InterPro | |
| Nmar_1045 | ABX12941 | response regulator receiver protein [Nitro... | CDD | UniProt | Pfam | InterPro | |
| Nmar_1202 | ABX13098 | response regulator receiver protein [Nitro... | CDD | UniProt | Pfam | InterPro | |
| Nmar_1206 | ABX13102 | response regulator receiver protein [Nitro... | CDD | UniProt | Pfam | InterPro | |
| Nmar_1248 | ABX13144 | response regulator receiver protein [Nitro... | CDD | UniProt | Pfam | InterPro | |

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|------------------|--------------------------|---|---------------------|-------------------------|----------------------|--------------------------|---------------|
| Nmar_1619 | ABX13515 | response regulator receiver protein [Nitro... | CDD | UniProt | Pfam | InterPro | |
| Other RRs | | | | | | | |
| Nmar_0707 | ABX12603 | response regulator receiver protein [Nitro... | CDD | UniProt | Pfam | InterPro | (REC-NitrOD5) |

Nitrososphaera viennensis EN76

HisK, no REC

| | | | | | | | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|--|
| NVIE_001040 | AIC14285 | putative membrane associated signal trans... | CDD | UniProt | Pfam | InterPro | |
| NVIE_001570 | AIC14342 | putative membrane associated signal trans... | CDD | UniProt | Pfam | InterPro | |
| NVIE_005590 | AIC14759 | putative membrane associated signal trans... | CDD | UniProt | Pfam | InterPro | |
| NVIE_007400 | AIC14950 | putative membrane associated signal trans... | CDD | UniProt | Pfam | InterPro | |
| NVIE_009870 | AIC15214 | chemotactic sensor histidine kinase CheA ... | CDD | UniProt | Pfam | InterPro | |
| NVIE_015250 | AIC15771 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro | |
| NVIE_021310 | AIC16393 | putative membrane associated signal trans... | CDD | UniProt | Pfam | InterPro | |
| NVIE_021340 | AIC16396 | putative membrane associated signal trans... | CDD | UniProt | Pfam | InterPro | |
| NVIE_026350 | AIC16904 | putative membrane associated signal trans... | CDD | UniProt | Pfam | InterPro | |
| NVIE_030060 | AIC17283 | putative signal transduction histidine ki... | CDD | UniProt | Pfam | InterPro | |

REC only

| | | | | | | | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|--|
| NVIE_015260 | AIC15772 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| NVIE_005580 | AIC14758 | putative CheY-like signal transduction re... | CDD | UniProt | Pfam | InterPro | |
| NVIE_007410 | AIC14952 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| NVIE_026340 | AIC16903 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| NVIE_009850 | AIC15212 | chemotaxis response regulator CheY [Nitro... | CDD | UniProt | Pfam | InterPro | |
| NVIE_021320 | AIC16394 | putative Polar-differentiation response r... | CDD | UniProt | Pfam | InterPro | |
| NVIE_021330 | AIC16395 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |
| NVIE_020450 | AIC16303 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | |

REC-CheB

| | | | | | | | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|--|
| NVIE_009860 | AIC15213 | Chemotaxis response regulator protein [Ni... | CDD | UniProt | Pfam | InterPro | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|--|

wHTH-REC

| | | | | | | | |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|------------|
| NVIE_030040 | AIC17281 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | (wHTH-REC) |
|-------------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|------------|

Other RRs

| | | | | | | | |
|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|---------------|
| NVIE_0132 | AIC14313 | putative signal transduction response reg... | CDD | UniProt | Pfam | InterPro | (NitrOD3-REC) |
|-----------|--------------------------|--|---------------------|-------------------------|----------------------|--------------------------|---------------|

Please send corrections, questions and comments to [Michael Galperin](#)