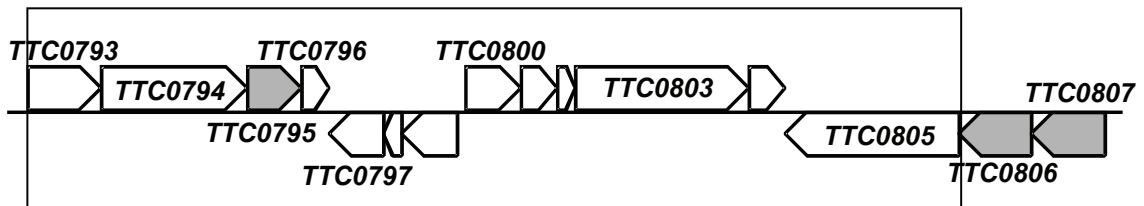
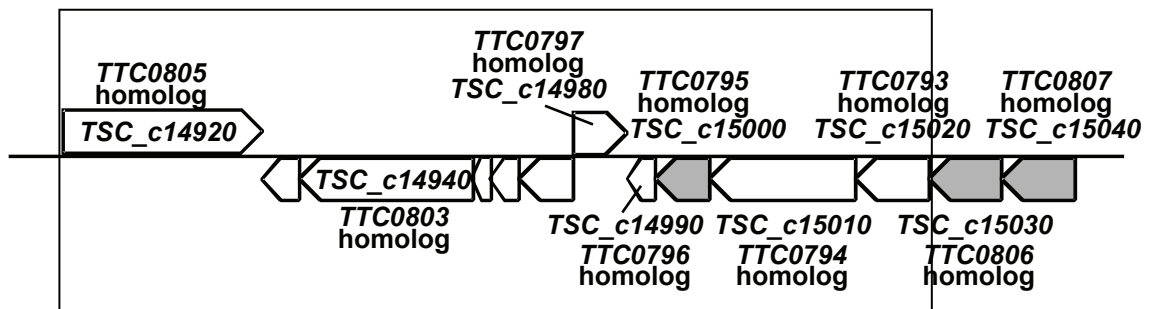
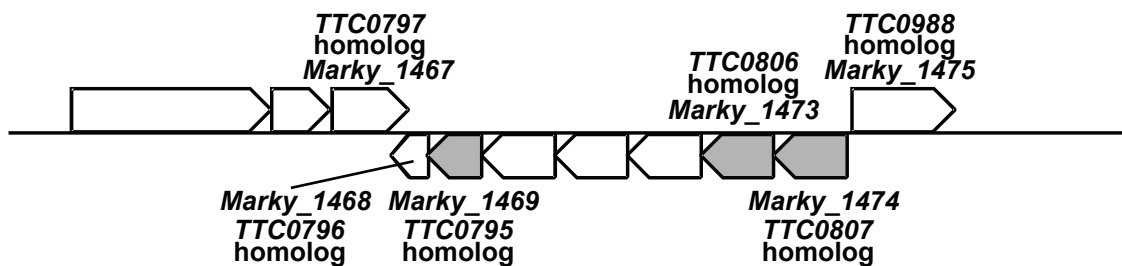


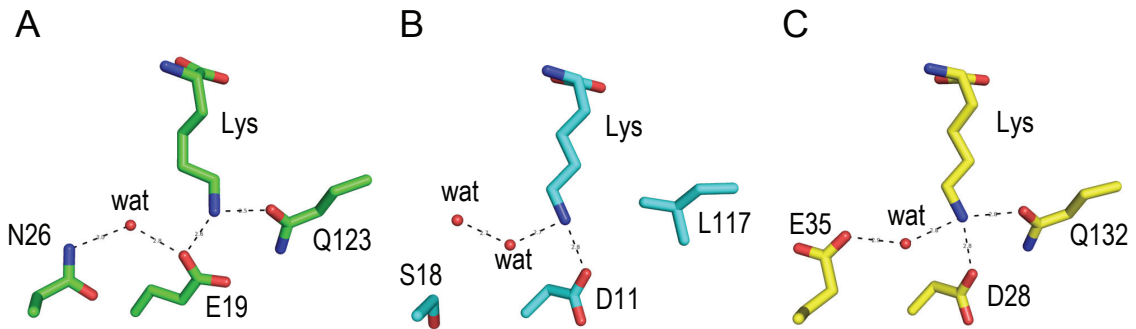
Kanemaru, Y., Hasebe, F., et al., Supplementary Figure S1.

Effect of deletion of TTC00795 and/or TTC0806 on growth in MM medium containing 500 μ M AEC. Open diamond, wild type; open circle, Δ TTC0807 mutant; open square, Δ TTC0795 mutant; closed diamond, Δ TTC0806 mutant; closed triangle, Δ TTC0807/ Δ TTC0969 double mutant.

A**B****C**

Kanemaru, Y., Hasebe, F., et al., Supplementary Figure S2.

Gene arrangement of components for AecT-I. (A) *T. thermophilus* HB27. (B) *T. scotoductus* SA-01. (C) *M. hydrothermalis* (T1^T). Genes, *TTC0795*, *TTC0806*, and *TTC0807*, and their putative orthologs are shown in gray. Genome region where putative gene inversion had occurred in *T. thermophilus* and the corresponding region of *T. scotoductus* are boxed.



Kanemaru, Y., Hasebe, F., et al., Supplementary Figure S3.

Recognition of ϵ -amino group of lysine. (A) TTC0807. (B) StLAO-BP. (C) GsArtJ. Water molecules closed to the ϵ -amino groups are shown as wats.

Supplementary Table S1. Primer sequences used for construction of expression plasmids for *TTC0795* and *TTC0969*

Name	Sequence
0795-fw	5'-AACTGCAGTAAGAAGGAGATATACATATGGCAAGCTGGAGCCACCCGCAGTTCGAAAAGGGTGGTATGGAGCCCATCATCCGGATC -3'
0795-rv.2	5'- AAGGAAAAAAGCGGCCGCTTAGTGGTGGAGCACCTCTG -3'
0969-cpx-fw	5'-CCATCGATTAAGAAGGAGATATACATATGAGGGTCCTCGAGGTC -3'
h0969-rv-HindIII	5'-CCCAAGCTTTAATGGTGATGGTGGTGTGCGGCACCTCCCGCGGC -3'

Supplementary Table S2. Primer sequences for constructs used for gene disruption

Name	Sequence
ttc0807-up-fw	5'- GCTCTAGACTCAACCTCAGCGTCTTGGAC -3'
ttc0807-up-rv	5'- GGACTAGTGCTTCACCTCCTAAAGAACCC -3'
htk-fw	5'- GGACTAGTCGTTGACGGCGGATATGGTAC -3'
htk-rv	5'- CGGGATCCCCGTAACCAACATGATTAACAA -3'
ttc0807-down-fw	5'- CGGGATCCAGAAGTGGTTCGGGGAGGACG -3'
ttc0807-down-rv	5'- CCGCTCGAG CATGGTGTCCGCGGCGGAAAA -3'
ttc0807-up-rv-hm	5'- CCAAGCTTGCTTCACCTCCTAAAGAACCC -3'
hyg-p31-fw	5'- CCAAGCTTATTCGGCCCAAGGTTTACAAAATCC -3'
hyg-rv	5'- CCATCGATGCCGGGGCGTCAGGCGCCG -3'
ttc0807-down-fw-hm	5'- CCATCGATAGAAGTGGTTCGGGGAGGACG -3'
ttc0969-up-fw	5'- GGACTAGTCCTGGGCCTCGGCGAGGTGGT -3'
ttc0969-up-rv	5'- CCAAGCTTTCATGCCTCCTCCTCCAGCTC -3'
ttc0969-down-fw	5'- CCATCGATACTACGGCTCCAAGATCGCCG -3'
ttc0969-down-rv	5'- GGGGTACCGAGGGCGAGGCGGGCGTTCTG -3'
ttc0806-up-fw	5'- AAGGAAAAAAGCGGCCGCGAGGTGGACCTGGGCAACGCC -3'
ttc0806-up-rv	5'- GGTCTAGAAGAAGGAAGAGGGCGAAAAAG -3'
htk2-fw	5'- GGTCTAGACGTTGACGGCGGATATGGTAC -3'
htk2-rv	5'- GGACTAGTCGTAACCAACATGATTAACAA -3'
ttc0806-down-fw	5'- GGACTAGTAGTGCCCCACCTGCGGCGAAA -3'
ttc0806-down-rv	5'- CCAAGCTTGACGGTGGCGATCGCTATGAA -3'
ttc0806-up-rv-hm	5'- CCAAGCTTAGAAGGAAGAGGGCGAAAAAG -3'
ttc0806-down-fw-hm	5'- CCATCGATAGTGCCCCACCTGCGGCGAAA -3'
ttc0806-down-rv-hm	5'- ACGCGTCGACGACGGTGGCGATCGCTATGAA -3'
ttc0795-up-fw	5'- GCTCTAGATTCCGGCTCCTCGAGGGGGGA -3'
ttc0795-up-rv	5'- GGACTAGTCGAGGCCCAAAGGTCGGTGG -3'
ttc0795-down-fw	5'- CGGGATCCCCCAAGGAGGAGCGCACCCGA -3'
ttc0795-down-rv	5'- GGGGTACCAAGGAACCGCCAGGACGGCC -3'
ttc0966-up-fw	5'- GGAATTCTCTATGACCCCAACGCCGAGT -3'
ttc0966-up-rv	5'- AACTGCAGACCTCACCTCCGAACGCTACG -3'
htk3-fw	5'- AACTGCAGCGTTGACGGCGGATATGGTAC -3'
htk3-rv	5'- GGTCTAGACGTAACCAACATGATTAACAA -3'
ttc0966-down-fw	5'- GCTCTAGATTGAGGTGGCGGCGCCGACAG -3'
ttc0966-down-rv	5'- AAGGAAAAAAGCGGCCCGCCCGTGGTGAGGTCCTGGGC -3'
ttc0806 check-fw	5'- ATAGACACCTGGATCACCGAC -3'
ttc0806 check-rv	5'- AAGGGGTTCTTCGCCCACTTC -3'
ttc0807check-fw	5'- TGTATAATCTTCCGGGTTCTTTA -3'
ttc0807check-rv	5'- CTTGCAGCGGACGTCCTCCCGAA -3'
ttc0969check-fw	5'- TATCCTCATCTTGATGATGATCTA -3'
ttc0969check-rv	5'- TGCCTTCGGCGATCTTGGAGCCGT -4'
ttc0795check-fw	5'- CGCCTTCACCCTCGTGGTCCCGG -3'
ttc0795check-rv	5'- TTAGTGGTGGAGCACCTCTGGAG -3'
ttc0966check-fw	5'- AGGCGTTGACAAGACGCCAG -3'
ttc0966check-rv	5'- GGCTCCAAAAGGAGCCACCCC -3'

Supplementary Table S3. Primer sequences for constructs used for pull-down assay

Name	Sequence
0806-fw-pHis8	5'-CGGAATCCGGTACCTCCGCTTTTTC-3'
0806-rv-pHis8	5'-CCCAAGCTTTTAGCGGCCGGGCAGGGCGAG-3'
0807-pET-fw	5'-GCTCTAGACATATGCAGGTGCGGAGCTTTGAGGAGATC-3'
0807-rv-Flag	5'-AAGGAAAAAAGCGGCCGCTTACTTATCGTCATCGTCCTTGTAGTCACCACCCTTGCAGCGGACGTCCTC-3'
0795-fw-Strep	5'-AACTGCAGTAAGAAGGAGATATACATATGGCAAGCTGGAGCCACCCGCAGTTCGAAAAGGGTGGTATGGAGCCCATCATCCGGATC-3'
0795-rv.2	5'-AAGGAAAAAAGCGGCCGCTTAGTGGTG GAGCACCTCTG-3'

Supplementary Table S4. Primer sequences for constructing pHIS8-0807 for crystallization of TTC0807

Name	Sequence
pHIS8-0807-fw	5'-CGGAATTCCAGGTGCGGAGCTTTGAGGAGATC-3'
pHIS8-0807-rv	5'-CCCAAGCTTTCACCTTGCAGCGGACGTCCTC-3'
