

Distant homolog of COG5012

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Thermotoga lettingae      1 ----MMKILGASIGSVHAGVNFILRLAEKNNVETIYIGSAIPVE-----LVREIKKHDPMDIASYRLAAALHNLRLREIKKKEK-1
Petrotoga mobilis        1 ----MMKILGASIGSVHAGVNFILRLAEKNNVETIYIGSAIPVE-----LVREIKKHDPMDIASYRLAAALHNLRLREIKKKEK-1
Thermosipho melanesiensis 1 ----MMKILGASIGSVHAGVNFILRLAEKNNVETIYIGSAIPVE-----LVREIKKHDPMDIASYRLAAALHNLRLREIKKKEK-1
Thermoanaerobacter pseudethanolicus 1 ----MMKILGASIGSVHAGVNFILRLAEKNNVETIYIGSAIPVE-----LVREIKKHDPMDIASYRLAAALHNLRLREIKKKEK-1
Thermoanaerobacter sp. X514 1 ----MMKILGASIGSVHAGVNFILRLAEKNNVETIYIGSAIPVE-----LVREIKKHDPMDIASYRLAAALHNLRLREIKKKEK-1
Thermoanaerobacter tengcongensis 1 ----MMKILGASIGSVHAGVNFILRLAEKNNVETIYIGSAIPVE-----LVREIKKHDPMDIASYRLAAALHNLRLREIKKKEK-1
Halothermothrix orenii    1 ----MMKILGASIGSVHAGVNFILRLAEKNNVETIYIGSAIPVE-----LVREIKKHDPMDIASYRLAAALHNLRLREIKKKEK-1
Roseiflexus sp. RS-1      1 ----MAEQKQTVVVAALGECVHVGVMNIFRLAEACAGTIVFLGPATVER-----VLEAAHREQADIVGVSYRLTPTTGAILHGRFABAADLH-A
Roseiflexus castenholzii  1 ----MTEKQKTVVVAALGECVHVGVMNIFRLAEACAGTIVFLGPATVER-----VLEAAHREQADIVGVSYRLTPTTGAILHGRFABAADLH-A
Symbiobacterium thermophilum 1 ----MTEKQKTVVVAALGECVHVGVMNIFRLAEACAGTIVFLGPATVER-----VLEAAHREQADIVGVSYRLTPTTGAILHGRFABAADLH-A
Alkaliphilus metalliredigens 1 MFALDITDIFAVKPSLDAFLSINSAAELRDCGYEYIGDGVAKAMNDFKYEVNQKIVLWITCNKISRSGSYRLDCEAVNMHGHFMNEQSSNE-1

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Thermotoga lettingae      84 MDKI-----VVFGGTIETNEARKFS-----FIKKCFDGSSEIDEVILFLRGKAREENLSFP-QTIGERIKKESF---
Petrotoga mobilis        85 EKID-----PIFGGTIETSOVARKYN-----FFKKIFDGSSEEDVDVFLRGQKYKEEENFP-STIABRIEFKSF---
Thermosipho melanesiensis 84 DKKI-----VVFGGTIVETNEARKIP-----FFKKIFDGCQIDIEVIMNENLRGENENVPQPTPQRIALKKPF---
Thermoanaerobacter pseudethanolicus 85 QHKK-----VVFGGTEPEAEVARKSG-----FFAAVFDKNGDAPTINFLRG-GSTNHRQRVFADTLGRIBDKFP---
Thermoanaerobacter sp. X514 85 QHKK-----VVFGGTEPEAEVARKSG-----FFAAVFDKNGDAPTINFLRG-GSTNHRQRVFADTLGRIBDKFP---
Thermoanaerobacter tengcongensis 85 KEKR-----VVFGGTEPEAEVARKSG-----FFAAVFDKNGDAPTINFLRG-KTATSQKRVFADTLGRIBDKFP---
Halothermothrix orenii    85 TGYK-----VVFGGTLVPEAEARKVYG-----FFAAVFDKNGDAPTINFLRG-REFSGINFGENLLRIEIRKPF---
Roseiflexus sp. RS-1      88 AGVR-----FAFAGTFPEAEAKAATIG-----FFEQVFDGSEPAQVIALLRQNPATATADFPQRTVDRIRKSP---
Roseiflexus castenholzii  88 AGVR-----FAFAGTFPEAEAKAATIG-----FFEQVFDGSEPAQVIALLRQNPATATADFPQRTVDRIRKSP---
Symbiobacterium thermophilum 81 AGRR-----VVLGCHDEVAEHEATIG-----FFEAVFGGSADWDQVVDVLRG-APTKAGGIPPTVVFRLIKRF---
Alkaliphilus metalliredigens 101 SYQGGPIKAVFEGGLPKASEIIDKQKGFVKTFKGGESVROSLAKMDVPEERFPKDIPEGSLYDLRLREKSDVINAQAYFGMPVDKSGYVDYGTKNDS

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Thermotoga lettingae      149 -----YPLIRHHHG-----LQSLDETANBIKKLAESGLDVISLAPDQNCQFFFEPEKMDHSDGAGGAPIRIKEDFVKLYEASRRGN
Petrotoga mobilis        150 -----YPLIRHHHG-----LQIMEETITPIKKLAESGLDVISLAPDQNCQYFFQEKMDPNQDAGGAPIRNEKQFTVLYEASRRGN
Thermosipho melanesiensis 150 -----YPLIRHHHG-----LAIETETTEKHVKLAESGLDVISLAPDQNCQYFFFEPEKMDKQDAGGAVPIRIGDEKRLYNARRGN
Thermoanaerobacter pseudethanolicus 150 -----YPLIRHHHG-----LPSLEDITIEGKKIAEAELDVISLAPDQNAQHFFD-KKYDPSLDGAGGVPIRKEEDLIRIYEASRRGN
Thermoanaerobacter sp. X514 150 -----YPLIRHHHG-----LPSLEDITIEGKKIAEAELDVISLAPDQNAQHFFD-KKYDPSLDGAGGVPIRKEEDLIRIYEASRRGN
Thermoanaerobacter tengcongensis 150 -----YPLIRHHHG-----LPSLEDITIEGKKIAEAELDVISLAPDQNAQHFFD-KKYDPSLDGAGGVPIRKEEDLIRIYEASRRGN
Halothermothrix orenii    150 -----YPIIRHHFG-----LPSVETKEEGIKKISEKRLDVISLAPDQNAQSFPEEMDEDEKAGGVPIRKEEDLIRIYEASRRGN
Roseiflexus sp. RS-1      154 -----YPLIRHHFG-----LPIVQATITASIKIAEARRLDVISLGDQDAQNFHFPEEDQPARTGAGGVPIRADDYRLIYEASRRGN
Roseiflexus castenholzii  154 -----YPLIRHHFG-----LPIVQATITASIKIAEARRLDVISLGDQDAQNFHFPEEDQPARTGAGGVPIRADDYRLIYEASRRGN
Symbiobacterium thermophilum 146 -----YPLIRHHFG-----QPIVQATITASIKIAEARRLDVISLGDQDAQNFHFPEEDPREHAGGVPIRPPDLRLIYEASRRGN
Alkaliphilus metalliredigens 201 VMKRIDNNMKTASTPLMRHHVGYPYSSVDRLDSYKREIFSWAKYLADKYLDILISGSSCLTQSNESGDWEDKAN---GGGVPIRNSPEEYRMYEAAKPF--

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Thermotoga lettingae      228 YPLMRCYSGTTHVAFSGLKEETINNAWAAIPFWYSYSLRRSRERNLDAIKENMEGKKNRANNPVENNAHOMELRRAHDSLEAVATYLAAYAKKL
Petrotoga mobilis        229 YPLMRCYSGTNDVFKMAEMLLRIENAWAAIPFWYSYSLRRSRERNLDAIKENMEGKKNRANNPVENNAHOMELRRAHDSLEAVATYLAAYAKKL
Thermosipho melanesiensis 229 YPLMRCYSGTNDVFKMAEMLLRIENAWAAIPFWYSYSLRRSRERNLDAIKENMEGKKNRANNPVENNAHOMELRRAHDSLEAVATYLAAYAKKL
Thermoanaerobacter pseudethanolicus 228 YPLMRCYSGTNDVFKMAEMLLRIENAWAAIPFWYSYSLRRSRERNLDAIKENMEGKKNRANNPVENNAHOMELRRAHDSLEAVATYLAAYAKKL
Thermoanaerobacter sp. X514 228 YPLMRCYSGTNDVFKMAEMLLRIENAWAAIPFWYSYSLRRSRERNLDAIKENMEGKKNRANNPVENNAHOMELRRAHDSLEAVATYLAAYAKKL
Thermoanaerobacter tengcongensis 228 YPLMRCYSGTNDVFKMAEMLLRIENAWAAIPFWYSYSLRRSRERNLDAIKENMEGKKNRANNPVENNAHOMELRRAHDSLEAVATYLAAYAKKL
Halothermothrix orenii    229 YPLMRCYSGTNDVFKMAEMLLRIENAWAAIPFWYSYSLRRSRERNLDAIKENMEGKKNRANNPVENNAHOMELRRAHDSLEAVATYLAAYAKKL
Roseiflexus sp. RS-1      233 YPLMRCYSGTNDVFKMAEMLLRIENAWAAIPFWYSYSLRRSRERNLDAIKENMEGKKNRANNPVENNAHOMELRRAHDSLEAVATYLAAYAKKL
Roseiflexus castenholzii  233 YPLMRCYSGTNDVFKMAEMLLRIENAWAAIPFWYSYSLRRSRERNLDAIKENMEGKKNRANNPVENNAHOMELRRAHDSLEAVATYLAAYAKKL
Symbiobacterium thermophilum 225 YPLMRCYSGTNDVFKMAEMLLRIENAWAAIPFWYSYSLRRSRERNLDAIKENMEGKKNRANNPVENNAHOMELRRAHDSLEAVATYLAAYAKKL
Alkaliphilus metalliredigens 296 -LVMRTVASTKNIPOLAEHEKNNLIGCHALSINWNNKVLBERGFYDLYTNLNQHIETKIKIARTKGKPEFNVEHHFARFADIVTYVSAYSIAKLAKKM

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Thermotoga lettingae      328 GVREYVQCFMLEIEGSGSPMDLAKMLAKKEIVESLQDENFRIYRMVTRGLMSMADINAAFGQSSSMGYGWALEPH-----LVHVYVYCESMRRAISA
Petrotoga mobilis        329 GVREYVQCFMNNPPIASIPSPMDLAKMLAKKEIVESLQDENFRIYRMVTRGLMSMADINAAFGQSSSMGYGWALEPH-----LVHVYVYCEAMKRATS
Thermosipho melanesiensis 329 GVREYVQCFMNSPPGSPMDLAKMLAKKEIVESLQDENFRIYRMVTRGLMSMADINAAFGQSSSMGYGWALEPH-----LVHVYVYCEAMKRATS
Thermoanaerobacter pseudethanolicus 328 GVREYVQCFMNNPPIASIPSPMDLAKMLAKKEIVESLQDENFRIYRMVTRGLMSMADINAAFGQSSSMGYGWALEPH-----LVHVYVYCEAMKRATS
Thermoanaerobacter sp. X514 328 GVREYVQCFMNNPPIASIPSPMDLAKMLAKKEIVESLQDENFRIYRMVTRGLMSMADINAAFGQSSSMGYGWALEPH-----LVHVYVYCEAMKRATS
Thermoanaerobacter tengcongensis 328 GVREYVQCFMNNPPIASIPSPMDLAKMLAKKEIVESLQDENFRIYRMVTRGLMSMADINAAFGQSSSMGYGWALEPH-----LVHVYVYCEAMKRATS
Halothermothrix orenii    329 GVREYVQCFMNNPPIASIPSPMDLAKMLAKKEIVESLQDENFRIYRMVTRGLMSMADINAAFGQSSSMGYGWALEPH-----LVHVYVYCEAMKRATS
Roseiflexus sp. RS-1      333 GVREYVQCFMNNPPIASIPSPMDLAKMLAKKEIVESLQDENFRIYRMVTRGLMSMADINAAFGQSSSMGYGWALEPH-----LVHVYVYCEAMKRATS
Roseiflexus castenholzii  333 GVREYVQCFMNNPPIASIPSPMDLAKMLAKKEIVESLQDENFRIYRMVTRGLMSMADINAAFGQSSSMGYGWALEPH-----LVHVYVYCEAMKRATS
Symbiobacterium thermophilum 325 GVREYVQCFMNNPPIASIPSPMDLAKMLAKKEIVESLQDENFRIYRMVTRGLMSMADINAAFGQSSSMGYGWALEPH-----LVHVYVYCEAMKRATS
Alkaliphilus metalliredigens 395 GVREYVQCFMNNPPIASIPSPMDLAKMLAKKEIVESLQDENFRIYRMVTRGLMSMADINAAFGQSSSMGYGWALEPH-----LVHVYVYCEAMKRATS

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Thermotoga lettingae      422 KBIIESVKMARRAINLAIRG-----IVPLGDEWKKKERIKKEEAFMIIEAKIKLKD-DNEPSSLDDVLYEAVNTGILDAEALFKGKSVAKG-----AKKT
Petrotoga mobilis        423 KBIIESVKMARRAINLAIRG-----IVPLGDEWKKKERIKKEEAFMIIEAKIKLKD-DNEPSSLDDVLYEAVNTGILDAEALFKGKSVAKG-----AKKT
Thermosipho melanesiensis 423 KBIIESVKMARRAINLAIRG-----IVPLGDEWKKKERIKKEEAFMIIEAKIKLKD-DNEPSSLDDVLYEAVNTGILDAEALFKGKSVAKG-----AKKT
Thermoanaerobacter pseudethanolicus 422 EDIIESVKIVKAVIRNTVFC-----VPLDQKDEVIKRRKQKKEARILLEAIKESAB-HSPDPAEDPVLAIAKIGLLDABHLKGNKYAKG-----VVIQT
Thermoanaerobacter sp. X514 422 EDIIESVKIVKAVIRNTVFC-----VPLDQKDEVIKRRKQKKEARILLEAIKESAB-HSPDPAEDPVLAIAKIGLLDABHLKGNKYAKG-----VVIQT
Thermoanaerobacter tengcongensis 422 EDIIESVKIVKAVIRNTVFC-----VPLDQKDEVIKRRKQKKEARILLEAIKESAB-HSPDPAEDPVLAIAKIGLLDABHLKGNKYAKG-----VVIQT
Halothermothrix orenii    423 SDIIESVKIARQVIRNTVFC-----YEGGYDPEKKRKLKKEAEILLNAIKNNVNDPSPDEPDEFLARSKIKGLDABHLKGNKPAAG-----KITT
Roseiflexus sp. RS-1      427 DDVIBACDARRAINLAIRG-----OPDVTADPSVARRAACLKESTHILLDAIAQALPAGVTPDLSDEATLTHAYVGLLDAQLNRNPPAP-----RQVT
Roseiflexus castenholzii  427 DDVIBACDARRAINLAIRG-----OPDVTADPSVARRAACLKESTHILLDAIAQALPAGVTPDLSDEATLTHAYVGLLDAQLNRNPPAP-----RQVT
Symbiobacterium thermophilum 419 EDVIBGCHVNGAIQALAQG-----LPDVTADPSVARRAACLKESTHILLDAIAQALPAGVTPDLSDEATLTHAYVGLLDAQLNRNPPAP-----RQVT
Alkaliphilus metalliredigens 495 DIINESIKITQYSHQKYRELRROGKVFPMKKNIDQSGVLELIDSAKIMLSGIEKHKIK-----NPYSYEGFYKIFAAEFLLPAFYLWGEVEEFKHVRAWKT

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Thermotoga lettingae      513 KVIDGLRCVDEG-ENILSKERLFTIIGRSI-----
Petrotoga mobilis        514 AVINGAYBAIENEN-ENIDRBAERNRNGIK-----
Thermosipho melanesiensis 510 KVIDGAQVADNDN-ENIIPBEKRNILNREEMEL-----
Thermoanaerobacter pseudethanolicus 513 KVIDGAQVADYDEKQRIIPBEERMEKILREYKSAIEV-----
Thermoanaerobacter sp. X514 513 KVIDGAQVADYDEKQRIIPBEERMEKILREYKSAIEV-----
Thermoanaerobacter tengcongensis 513 KVIDGAQVADYDEKRIIPBEERMEKILREYKKEHFFV-----
Halothermothrix orenii    515 RVINGAQVADYDNEIRIIPBEERIQRIGG-----
Roseiflexus sp. RS-1      519 REINEMOVARDDQ-GREIDQKQARQLIDHHTTLVTT-----
Roseiflexus castenholzii  519 REINEMOVARDDQ-GREIDQKQARQLIDHHTTLVTT-----
Symbiobacterium thermophilum 511 REITDGAQVADNRSP-ENIDRBAERNRNGIK-----
Alkaliphilus metalliredigens 590 KFKKSGVKIKIDEANINPKAKKVVVDYASKNVKEVEYIVKQRMALAEHKY

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