

A. polD-S multiple sequence alignment

<i>T. species</i> 9°N	--MLIEDLIK NKYLITPSAYYLLEPHYKR-DFTLAELIKFAKARGTFVID	47
<i>T. kodakaraensis</i>	--MLVEDLLKNNYLITPSAYYLLSDHYKK-AFTLAELIKFAKNRGTFFVD	47
<i>P. furiosus</i>	MDEFVKSLLKANYLITPSAYYLLREYYEKGEFSIVELVKFARSRESYIIT	50
<i>M. jannaschii</i>	-MEIINKFLDLEALLSPTVYKLNKFNDEEKLKRLIQKIREFKKYNNAFIL	49
<i>M. maripaludis</i>	---MINDFLNIQVLLAPESYSRLQNLDSNDFSDLFNKIKEFKSKKDDFIL	47
<i>H. volcanii</i>	--MPLETPARIVRTLVRGRGYNAREAVTLIAGSDDPGRTLAR-----	40
<i>H. species</i> NRC-1	-----	
<i>A. fulgidus</i>	-----MVIKNIDAATVAKKFLVRGYNIDPKAAELICKSGLFS-----	37
<i>T. acidophilum</i>	-----MVIWFFYGRKIMHLS---LKRIIVCKMS-----	27
<i>T. species</i> 9°N	SSIAEAFLEKGLFSTG---ELTEQTPLEVSEE-----EPLASREEI	87
<i>T. kodakaraensis</i>	SNLAREFLAEKGIISGNGALDGSVLSGISVSESPVKPNGEAVLESESEDE	97
<i>P. furiosus</i>	DALATEFLKVKG-----	62
<i>M. jannaschii</i>	LDEKFLDIFLQKDLDEI-----	66
<i>M. maripaludis</i>	LDSHFLNIFLGNNLNKI-----	64
<i>H. volcanii</i>	-----	
<i>H. species</i> NRC-1	-----	
<i>A. fulgidus</i>	-----	
<i>T. acidophilum</i>	-----	
<i>T. species</i> 9°N	HGDFAESAEIPVSETVTASRPEEIPSEDFESAEASSISTGDVVESEVA	137
<i>T. kodakaraensis</i>	SGAIESSLQEGVEDGVESIAEPSAASVEDVVVAGESSLASEGSSLEDEIN	147
<i>P. furiosus</i>	-----LEPILP	68
<i>M. jannaschii</i>	-----	
<i>M. maripaludis</i>	-----	
<i>H. volcanii</i>	-----	
<i>H. species</i> NRC-1	-----	
<i>A. fulgidus</i>	-----	
<i>T. acidophilum</i>	-----	
<i>T. species</i> 9°N	TASSGEESVPEP-AEIIG----ETSISTGTAPELEQSLTLNSVEEPPVSGE	181
<i>T. kodakaraensis</i>	TEPELSSMDDGAEVVQSSEGEETSISTGNALGSVDYGGSDSESEALEEA	197
<i>P. furiosus</i>	VETKGG-----FVSTGESQKEQSYEESFGTKKEEISQE	100
<i>M. jannaschii</i>	-----INEYKDFDFIFYYTGEEKEKPKVE	91
<i>M. maripaludis</i>	-----FEEYGKDFLAYYTSNEVASEEKII	89
<i>H. volcanii</i>	-----VVEAAPDDALRITADHVREVLASA	64
<i>H. species</i> NRC-1	-----	
<i>A. fulgidus</i>	-----DELVDKICRIANGGFIEKSVV	59
<i>T. acidophilum</i>	-----QLDRTSLIQYFNSNGVLISPEAL	50
<i>T. species</i> 9°N	ISEGESFVSTGTPPEHEELVDEAAGSLDSSLTEVVEDSLPVEAEPLNGNGY	231
<i>T. kodakaraensis</i>	SSGGESFISTGTPEDALLEESPEGEFPDENGFSDES L PVENG--SENGY	245
<i>P. furiosus</i>	IKEGESFISTGS---EPLLEELN-----SIGIEEIG-----	128
<i>M. jannaschii</i>	KK-EIKKETEEKIEKEKIEFVKKEEKE-----	117
<i>M. maripaludis</i>	EKDDFEPVNEVKLENEEIEPKRENK-----	115
<i>H. volcanii</i>	PAADPSGTEPTP-----	76
<i>H. species</i> NRC-1	-----	
<i>A. fulgidus</i>	EEFLRNLSN-----	68
<i>T. acidophilum</i>	DK-LIKYSSSSLIED-----	64
<i>T. species</i> 9°N	GNYTDSEYYENGENGNGVVKPKIVYGDYGIPIAYVG-EDVEGEKSYSTYE	280
<i>T. kodakaraensis</i>	G---DSEYYENGDN--GVKPKIVYGDYGVPIAYVADETPEEKAYSTYS	290
<i>P. furiosus</i>	---ANEELVSNNGND--NGGEAIVFDKYGYPMVYAPEEIEVEEKEYSKYE	172
<i>M. jannaschii</i>	-----QFIKKSDEDVEEKLKQLISKEEKEDFDA	146
<i>M. maripaludis</i>	-----VYDLDFEDIEEEEPELDEIHKKLE--E	140
<i>H. volcanii</i>	-----PAAADAANAADADPAASAASDPVSAATSH	106
<i>H. species</i> NRC-1	-----	
<i>A. fulgidus</i>	-----LKPATLTPRPEE-----	80
<i>T. acidophilum</i>	-----LIKNSDGYIDEK-----	76
<i>T. species</i> 9°N	DVVIKPKEGFHYRAKEIPDEWELTFDVKNVKFEAPKVKNAASKEGEIIO	330
<i>T. kodakaraensis</i>	DLVIAPKEGFHYRAKEIPDEWELAFDVKNVKFEVVKVNAQSKEGEVIO	340
<i>P. furiosus</i>	DLTIPMNPDFNY--VEIKEDYDVVFDVRNVKLPKPKVKNKGKGEIIVE	220
<i>M. jannaschii</i>	ERAKRYEHITKIKESVNSRIKWIAKDIDAVIEIYEDSDVSGKSTCTGTIE	196
<i>M. maripaludis</i>	ERKERILEVRSIRESVNNKINYAKDIDAQIHVYDEYDVTGKSTCEGTL	190
<i>H. volcanii</i>	DNAAHTDQSAPAEAQGTTPGGRNVDPALRSLEIAN---DMTGQSTGTGEYD	153
<i>H. species</i> NRC-1	-----MTGASTGTGEYQ	12
<i>A. fulgidus</i>	---RKVEEVKAS-----CIALKVIKIDITGKSSCQGNVE	110
<i>T. acidophilum</i>	-YVERYVSRPKVRN-----DYEYVLP-DVR---FNASIE	105

T. species 9°N AYSSYFKSRLRKMRRIFRENPEIGTVIDI AKLSYVRDDE-VTIIGLVNDK 379
T. kodakaraensis AYSSYFKSRLKKMRRIFRENPEIGTVIDI AKLSYVREDD-VTIIGLVNEK 389
P. furiosus AYASLFRSRLKKLRKILRENPELDNVVDIGKLYVKEDETVTIIGLVNSK 270
M. jannaschii DFVKYFRDRFERLKVFERKAQRKGYPLKDIKMKGQKD-IFVVGIVSDV 245
M. maripaludis DFVKYFKDRCSLTKRIIELNQKAYPLNQLFRKKENE-VFIAGIVSDV 239
H. volcanii DFVKYFRDRYKLSKLLRGRVNRHPAKAISNMSGGEDAE---LIGLVDDV 200
H. species NRC-1 DFVSVFRDYYDRLAAQLRGRVNRHPTSALASMPGGSDAA---IVGMVNDI 59
A. fulgidus DFLMYFNSHLEKLSRIIRSRVNTTP----IAHAGKVRGN-VSVVGMVNEV 155
T. acidophilum DFRKMFVSKYEKLSKIITSSSSMRG-SISIKTAKRSQGE-VKVVGMVSEV 153

T. species 9°N RETAKG-YMFEVEDATGRVKVFLGRDKENASQAYNAIMPDSVVAFRG--- 425
T. kodakaraensis RETRKG-YLFEIEDATGRIVKFIGSDKEGANEAYSTIMPDSVVAFRG--- 435
P. furiosus REVNKG-LIFEIEDLTGKVKVFLPKDSEDYREAF-KVLPDAVVAFKG--- 315
M. jannaschii DSTRNGLNIVRIEDTEDEATLILPKEKLEAGKIPDDILLDEVIGAIGTVS 295
M. maripaludis NSTKNGHKMVELEDENGTFRVLLMKDKMEKGLDPSDVLLDEVIGFEGTIN 289
H. volcanii RSTKSGHWIIDLEDTTGTFPCLVMKDKDIAGYVDELLMDECTIAVQGT--- 247
H. species NRC-1 RSTTSGHWRVELEDTNGVFPVLVKDRDVS DLVDDLLLDEVIASVGT--- 106
A. fulgidus YE-RGDKCYIRLEDTTGTTICVATGKN---AEVARELLGDEVIGVTG-LL 200
T. acidophilum SMTKNGHKRIVIEDLDDSTITAIVMKD---RGPVNEIILEDEVIGIIGSVS 200

T. species 9°N QPG-RGIFFANRVFLPDVFKFREKPPLEEKVYAILLSDIHVGSNKFCCK 474
T. kodakaraensis TPG-KGIFFANRVFLPDVFKFRSKPPLEEKVYAILLSDIHVGSNKFCCE 484
P. furiosus VYSKRGILYANKFYLPDVLRYRQKPPLEEKVYAILLSDIHVGSKEFCEN 365
M. jannaschii KSGS--SIVDEIIRPALE-PKEP-KRIDEEIYMAFLSDIHVGSKEFLHK 341
M. maripaludis DKGD--LMFVDRAFRPDIT-PKPT-KTDEKIYTAFLSDVHVGSREFLNK 335
H. volcanii LSGDAGILFVDSMHFPDVERSHRSN-TADDRVQAALISDVHVGSQEFMAD 296
H. species NRC-1 LADDGTILFADDIYFPEVERTYSPS-TADRSVQAALISDVHVGSQEFMAD 155
A. fulgidus KGSS--LYANRIVFPDVE-INGN-GEKCRDFYIVFLSDTHFSSKEFLEK 245
T. acidophilum QSSKDPVIFVNEIIRPDIE-YRVIDEEKHEPVVASISDIHVGSKTRKRN 249

T. species 9°N AFEKFLEWLNGEVNSRAEELVSRIKYMIGEDVVDGVIYPGQYNEILAI 524
T. kodakaraensis AFIKFLEWLNGEVNSRTEEELVSRIKYYIIGEDVVDGVIYPGQYNEILAI 534
P. furiosus AFIKFLEWLNGVNETKEEEIIVSRVKYLIIGEDVVDGVIYPGQYADITI 415
M. jannaschii EFEKFIRFLNGVDNLEEKVVSRLKYICIAEDLVDGVIYPGQEEEDLYE 391
M. maripaludis VFAKFIRFLNGEVNNGLEEKIVSRLKYISIAEDLVDGVIYPGQEYDLYD 385
H. volcanii AWRNFADWLHTEEAAR-----IEMLLIAGDMVEGVGVYVPGDEEDVD 338
H. species NRC-1 AWRSFADWLHTPAAES-----VEMLLIAGDMVEGVGVYVPGDEEDI 197
A. fulgidus EWEMFVRWLKGEVGGKKSQNLAEKVKYIVIAEDIVDGIYVPGQEDDLAI 295
T. acidophilum EFEAMVRWISGSDPD-----ASRVKYLILSDVVDGVIYVPGQENDEI 293

T. species 9°N PDIFDQYEALANLLRNVDHITMFIGPGNHDAARTALPOPGFYEEYAKPI 574
T. kodakaraensis PDIFDQYEALANLLKQVVDHITMFIGPGNHDAARTALPOPGFYEEYAKPL 584
P. furiosus PDIFDQYEALANLLSHVFKHITMFIAIPGNHDAARQAIPOPEFYKEYAKPI 465
M. jannaschii VDIIEQYREIAMYLQIPEHISIIISPGNHDAVRPAEPOPKLPEKITK-L 440
M. maripaludis VDIISOYAEVAAYLEQVEHIVKIICPGNHDAVRPAEPOPTDESITSL-L 434
H. volcanii IDIIEQYEAFAEHLKSVPGDLEIVMIPGNHDAVRLAEPOPGDDELDRD-I 387
H. species NRC-1 VDIYDQYETFAEHLKDVPGDMEIVMIPGNHDAVRLAEPOPADDELRS-I 246
A. fulgidus SDIYQYEFAAASHLEIPEKIKLIVSPGNHDAVRQAEPOPAFEGEIRSL-L 344
T. acidophilum LNPLEQYANLAEYLVVDVEDVVKVFMVPGNHDTVRLSEPOPVTPGKIRD-L 342

T. species 9°N YKLNNAVIISNPAVINLHGRDFLIAHGRGIEDVVDVFIPG--RTHHKPAEA 622
T. kodakaraensis YKLNNAVIISNPAVIRLHGRDFLIAHGRGIEDVVDVFVPN--RSHHRPAEA 632
P. furiosus YKLNNAVIISNPAVIRLHGRDFLIAHGRGIEDVVGSVPG--LTHHKPLP 513
M. jannaschii FNRDNIYFVGNPCTLNIHGFDTLLYHGRSFDDLVGQIRA--ASYENPVTI 488
M. maripaludis FPKENVTFVGNPQVNMHGLDLIMYHGRSFDDIIGQISS--AQYTNPPSI 482
H. volcanii MSAHDARITSNPMTLEGVNVMYHGVSLDEVIAELPADKASYDEPHKA 437
H. species NRC-1 MRAHDARITSNPSTVTIDGVSVLLYHGVSLDEVIAEHPSDVYDDPQNA 296
A. fulgidus FPK-NVEHVGNEAYVDIEGVKVIYHGRSIDDIIISKIPR--LSYDEPQKV 391
T. acidophilum FEP-NVAFLPNPYNLKLLEGKNVIVYHGMSLNDMIELIPG--ANYDSTGKA 389

T. species 9°N MVDLLKLRHLAPTFGNKVPVIAEDPEDTLVIESVPDLFQAGHVIVMEYRIY 672
T. kodakaraensis MVELLKLRLHIAPTFGNKPVIAEDPEDTLVIESVPDLFQAGHVIVMQYKTY 682
P. furiosus MVELLKMHRHVAFMFGGKVPVIAEDPEDLLVIEEVPDVVHMCHVIVYDAVVY 563
M. jannaschii MKELIKRRLLCPTYGGRCPIAEPHKDYLVLDRIDILHTGHIVINGYGIY 538
M. maripaludis MTELLKRRHLCTYGGRCPIAEPHVLYLAHTEPDIFHTGHIVINGYDNY 532
H. volcanii MYQLLKKRHVAPQFGGHTRLAPEELDYLVMEDVDPDIFHTGHIVKLGWKY 487
H. species NRC-1 MELLKRRHVAFPFGGTRLPAEAEDHLAIDTVPDVFHTGHIVKLGVIH 346
A. fulgidus MEELLKRRHLSPIYGGRTPLAPEREDYLVIEDVDPDILHCGHIVTYGTGFY 441
T. acidophilum IEAILVRHLSFKYGGNTPMISAVDYHVIEEVPDIFITGHIVSHYIGNY 439

T. species 9°N NGVVFVINSGTWQAQTEFOKMVNIIPTPARVPIIDVETARLRAVVSFDQFC 722
T. kodakaraensis NGVVFVINTGTWQAQTEFOKMVNIIPTPARVPIIDVETARLRAVVRFDQFC 732
P. furiosus RGVLVNSATWQAQTEFOKMVNIIPTPAKVPPVVDIDTAKVVKVLDVDFSGWC 613

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M. jannaschii      RGVVMVNSGTFEEDTDFQKRMGISSPTPAIVPIINMAKVGEKGHYLEWDRG 588
M. maripaludis    HGVVRMINSGTFEEDTDFQKRMGIKPTPGIPIQDLSKREQ--HMIEWNQG 580
H. volcanii        HNVLAVNSGCWCACTDFQKSVNIDPDAGYAPIVDLDTLNMTVRKFS---- 533
H. species NRC-1  HNVRLVNSGCWCHOTAFQESVNISSPDVATAPILDLDTLDITVHKFS---- 392
A. fulgidus        RGVFMVNSSTWCACTEFQKKNLNPMPGNVAVYRPGGEVIR---LRFYGE 488
T. acidophilum     KGVRYVNSSTWCSQTEYQKMMNFNPKPSKLTFLDLYSRSV--IVKDFDTT 487

T. species 9°N     EGV--- 725
T. kodakaraensis  EGV--- 735
P. furiosus        -----
M. jannaschii     VLEVRY 594
M. maripaludis    KIEIN- 585
H. volcanii        -----
H. species NRC-1  -----
A. fulgidus        -----
T. acidophilum     L----- 488

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B. polD-L multiple sequence alignment

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T. species 9°N     ---MGEELYSPEMKAYFESLQRE-----IDRAYE 26
T. kodakaraensis  ---MSEEIYSPEMKAYFESLQRE-----IDRAYA 26
P. furiosus        ---MELPKEIEEYFEMLQRE-----IDKAYE 23
M. jannaschii     MIVMVHVACSENMKKYFENIVDE-----VKKIYR 29
M. maripaludis    ---MLHVSASKGMTEYFKNILDD-----VSNLYN 26
H. volcanii        ---MREEETRYFRRIEAR-----LDEAFD 21
H. species NRC-1  ---MRPTDETYFETLETG-----LDDAFE 21
A. fulgidus        ---MDATLDRFFPLFSESNEDFWRIEIRRYHESLMVELDRIYR 42
T. acidophilum     ---MSQKPFDELGYRKYITEK-----VREAFN 24

T. species 9°N     IARKARSQKDPKPSLDVEVFPQATDMAGRVESLVGPPGVAERIRELV-KEYG 75
T. kodakaraensis  IARKARAQKDPKPSDFDVEVFPQATDMAGRVESLVGPPGVAERIRELV-KEYG 75
P. furiosus        IAKKARSQKDPKPSDVEVFPQATDMAGRVESLVGPPGVAQRIRELL-KEYD 72
M. jannaschii     IEECRKKGFDPDTEVEIPLAADMADRVEGLVGPKGVAERIRELV-KELG 78
M. maripaludis    LAEECRKNGYDVTDHVEIPLAKDMADRVEGIVGPKNVAERIRELV-SEFG 75
H. volcanii        LEAAKATGYDPKTEVEIPVAKDMADRVENILGIDGVAERVRELE-GEMS 70
H. species NRC-1  VEAARERGEDPTPNVEIPVAKDMADRVENILGIDGVAERVRDLD-GEMS 70
A. fulgidus        IEAARKKGLDPELSVEIRIAKNMAERVEKLMNLQGLAKRIMELEEGGLS 92
T. acidophilum     VQEARAKGLDVS DHVEIPLASDMAERIEALIGIKGIAQEI RDL S-SRMS 73

T. species 9°N     KELAALKVVDEIIIEGKFGDLGSKEKYAEQAVRTALAILTEGIVSAPLEGI 125
T. kodakaraensis  KEIAALKVVDEIIIEGKFGDLGSKEKYAEQAVRTALAILTEGIVSAPLEGI 125
P. furiosus        KEIVALKIVDEIIIEGKFGDFGSKEKYAEQAVRTALAILTEGIVSAPLEGI 122
M. jannaschii     KEPAALEIAKEIVEGKFGNFD-KEKKAQAVRTALAVLTEGIVAAPLEGI 127
M. maripaludis    KEPAALEIAKEIVEGKFGFG-REVGAQAVRTALAVITEGIVAAPLEGI 124
H. volcanii        REEAALVLTDFVDGNVGDYDSREGKVEGAVRTAVALLTEGVVAAPIEGI 120
H. species NRC-1  REEAALVLDVDFVDRVGDYDTDAGKIEGAVRTAVALLTEGVVAAPIEGI 120
A. fulgidus        RELICFKVADEIVEGKFGEMPKEE-AIDKAVRTAVAIMTEGVVAAPIEGI 141
T. acidophilum     REEVSLEMSRRIAA---MFKDNRKEALDKAIVGLAILTEGILVAPLEGI 120

T. species 9°N     ADVKIKRNTWADNSEYLALYYAGPIRSSGGTAQALSVLVGDYVRRKGLD 175
T. kodakaraensis  ADVKIKRNEWADGSEYLALYYAGPIRSSGGTAQALSVLVGDYVRRKGLD 175
P. furiosus        ADVKIKRNTWADNSEYLALYYAGPIRSSGGTAQALSVLVGDYVRRKGLD 172
M. jannaschii     ADVKIKKN--PDGTEYLAIYYAGPIRSSGGTAQALSVLVGDVVRKAMGLD 175
M. maripaludis    AYVKIKKN--SDNSEYLAIYFAGPIRSSGGTAQALAVLVGDYVRRKMGD 172
H. volcanii        DRVEILEN--DDGTEFVNYYAGPIRSSGGTAQALSVLVADYARSLDID 168
H. species NRC-1  DRVEVNDN--DDGTQYVAVYYAGPIRSSGGTAQALSVLVADYARAMLGID 168
A. fulgidus        ARVRIDRE--N----FLRVYYAGPIRSSGGTAQAVISVLVADYVRRKAEIG 185
T. acidophilum     ADVYIGKN--QDGEYVYGISYAGPIRSGGGTAQALSVLVIGDVVRRRELGIS 168

T. species 9°N     RFKPSEEHIERMVVEEIDL YHRAVTRLQVHPEADEVRLAMRNIEIEITGEE 225
T. kodakaraensis  RFKPSEEHIERMVVEEVDLYHRAVTRLQVHPEADEVRLAMRNIEIEITGEE 225
P. furiosus        RFKPSGHIERMVVEEVDLYHRAVSRLOVHPSDEVRLAMRNIEIEITGEA 222
M. jannaschii     RYKPTEDEIERVVEEVELYQSEVGSFOYNPDTADEIRTAIRNIEIEITGEA 225
M. maripaludis    RFKPTEDEVERYVEEVDLYQSEVTTFOYQPKAEIRVAVRNISVEITGEA 222
H. volcanii        EYKARTDEVERYVEEINLYDKETG-LOYSPKDKESRFIAENMIMLDGEA 217
H. species NRC-1  AFKPRDDEIERVVEEVDLYDSETG-LOYSPKDAETTFITEHCVMLDGEA 217
A. fulgidus        RYVPTEEELLRYCEEIPLYKKVAN-LOYLPSDEEIRLIVSNCFICIDGEP 234
T. acidophilum     RFQPTEDEIERVVEEIESVDRIKH-LOYMPTPDEIKLVVRNSFCICIDGEG 217

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T. species 9°N TDKVEVS-HRNVPGVETNHLRGGAILVLAEGVLQKAKMLVKYIDKMGVEG 274
T. kodakaraensis TDKVEVS-HRNVPGVETNHLRGGAILVLAEGVLQKAKMLVKYIDKMGIEG 274
P. furiosus TDDVEVS-HRDVEGVETNQLRGGAILVLAEGVLQKAKMLVKYIDKMGIDG 271
M. jannaschii TDDVEVSGHRDLPRVETNQLRGGALLVLEGVLLKAPKILRHVDKLGIEG 275
M. maripaludis TDDVEVSGHRDLPRVETNQIRGGALLVLEGVLLKAPKILRHVDKLNIEG 272
H. volcanii TGDVEVSGYRDLERVDITNSARGGMCLVMAEGIALKAPKIQRYTRQLDEVD 267
H. species NRC-1 TGNEEVDGFRDLERIDITNSPRGGMCLVLAEGIALKAPKIQRYTRNLDEVA 267
A. fulgidus TESAEVSGYRNLPRVETNVRVGGMALVIAEGIALKAPKILKMMVDEVGIEG 284
T. acidophilum SEEEVSGHRDMERIKTNRIIRGGMCLVLCCEGLVQKAKMLKLYTSSMHLDD 267

T. species 9°N WDWIKEFVEAKEKGSSEEPKADESKAEDSGAR--EVAEKVEKGFYEL 322
T. kodakaraensis WDWIKEFVEAKEKGSSEE-NKDESKAEDTGTESVAEKKNVEKGFYEL 323
P. furiosus WEWLKEFVEAKEKGEIEE---SESKAEESKVVET---RVEVEKGFYK 314
M. jannaschii WDWLKDLSKKEEKEEEDKDEKVDDEEID-----EEEEISGWWRD 315
M. maripaludis WDWLKEKLSKKEEVIEELEE--ENDEYN-----YEDEEDLSQYED 310
H. volcanii WPNLQDLIDGTIGKDDNAANADDAGDDGD-----EAEATEDPDAEA 309
H. species NRC-1 WPNLQDLIDGTIG-ADDAEDTPDAGSDSD-----ATDEGDAPSAST 308
A. fulgidus WEWLDALIK-----GGGDSG-----SEEEK----- 304
T. acidophilum WNFLANLGGKAEGKSS----- 283

T. species 9°N YERF-----RANIAPNKKYTKETIGGRPLFAEPSENGGFRLRYGRS 366
T. kodakaraensis YEFK-----RANIAPNKKYTKETIGGRPLFAEPSTNGGFRLRYGRS 367
P. furiosus YEFK-----RAEIPASEKYAKEIIGGRPLFAGPSENGGFRLRYGRS 358
M. jannaschii VK-----IEANKFISEVIAIGRPFVAHPSKVGGFRLRYGRS 354
M. maripaludis YE-----VEAVTKFIGEVIAGRPFVSHPSKKGGFRLRYGRS 349
H. volcanii DDAESDAPDGPTRVEPATKFLRDLIAGRPVFGHPSAPGGFRLRYGRAN 359
H. species NRC-1 DAE-----PPRAAPSDKFLRDLIAGRPFVGHPSKNGGFRLRYGRAN 352
A. fulgidus -----AVIKPKDKYLSDIVAGRPFVLSHPSRKGGFRLRYGRAN 343
T. acidophilum -----KKSDFLKDIVAGRPFVSHPSRPGGFRLRYGRS 319

T. species 9°N GFATWSVNPATMLILDEFIAIGTQMKTERRPGKGCIVTATTVEGPIVKLK 416
T. kodakaraensis GFATWSVNPATMLILDEFIAIGTQMKTERRPGKGCIVTATTVEGPIVRLK 417
P. furiosus GFATWSINPATVVLVDEFLAIGTQMKTERRPGKAVVTATTAGPIVKLK 408
M. jannaschii GFATQGFHPALMYLVDEFMVGTQLKTERPGKATCVVVDVSIPIPIVKLK 404
M. maripaludis GFATDGFHPALMYLVDFMVGTLQKTERPGKATCVVVDVSIPIVKLN 399
H. volcanii GFATAGVHPATHHIVDDFIATGTQIKTERPGKAGGVVVDVSIPIGPTVRIA 409
H. species NRC-1 GNTAGVHPATHHLLDDFLATGTQIKTERPGKAAGIVVDVSIPIGPTVCLA 402
A. fulgidus GFATVGVNPATMYLL-ETVAVGTQLKTERPGKAGGVVVDVSIPIGPTVRLK 392
T. acidophilum GLAASLNPATMYIMGKFLAIGTQIKTERPGKAAAVTFCDTIDGPTVLLK 369

T. species 9°N DGSVVRVDDYETALRVKNEIEELLYVGDALVNFVDFVENNQTLLPANYVE 466
T. kodakaraensis NGSVVRVDDYETALKVRNEVDELLYVGDALVNFVDFVENNQTLLPANYVE 467
P. furiosus DGSVVRVDDYNLALKIRDEVVEELLYVGDALVNFVDFVENNQTLLPANYVE 458
M. jannaschii NCDVIRVDTIEKAMDVRNRVEELFLGDVLVNFGDFLENNHPLPSCWCE 454
M. maripaludis DESVLKIDTVEKAKQYTDVQVEELFLGDVLVNFGDFLENNHPTVLPSSWCT 449
H. volcanii NCDVRRIDDPEEAKELQNGVEKLLDLEYLNVNFGDFVENNHPAPASVVF 459
H. species NRC-1 NCDVRRINDPADALDVRNGVAELLDVGEYLNVNFGDFVENNHPAPASVYAP 452
A. fulgidus NCDVVKINTLSEAKALKEGVAALLDLELLINYNFGDFLENNHPIIPASVY 442
T. acidophilum NCDHVKINDIEKAREVYDDVETDAEELIAYGDFLENNYPIPTPSFTV 419

T. species 9°N EWWVQELVKAIEELYEVELKPFSDNPRAVEEAAEYLEVDPDFLESLLRD 516
T. kodakaraensis EWWVQELVQAIKDLYEVELQPFPAENDREAVEEAAEYLEVDPDFLWNLK 517
P. furiosus EWWIQEFVKAVNEAYEVELRPFENPRESVEEAAEYLEVDPDFLAKMLYD 508
M. jannaschii EWYEKILI-----ANNIEYDKDFIK----- 474
M. maripaludis EWYEKILK-----SQNLEYTEEFIK----- 469
H. volcanii EWWIQEFATEAN-----VQALRDPDAVDLE---- 485
H. species NRC-1 EWWIQDLDAAGAD-----VQALRDSPLYVDLT---- 478
A. fulgidus EWWIQEAEKAG-----LRG----DYS---- 459
T. acidophilum EWWEQYLPDGVNAK----- 433

T. species 9°N PLRVKPSVELAIHLSKVLDFPHFYTYLWNTLKPVEVEELQKALLN-AQ 565
T. kodakaraensis PLRVKPDVETAHLSSTVLDIPLPHFYTYLWNTLQPEVEVEELQKALLG-AQ 566
P. furiosus PLRVKPPVELAIHFSEILEIPLPHFYTYLWNTVMPKDVRLWGLKDKAT 558
M. jannaschii ----NPKPEEAVKFALETKTPLHPRFTYHWHVSKEDIILLRNWLK--- 517
M. maripaludis ----NPGQNEAVNYAKITKTPLHFKYTYFVHWDISKENIFSLRSWVIG--- 512
H. volcanii ----EPSVEQALSWATEFDAPLHPVYTYLWHDISVERFDALADAVAAGEI 531
H. species NRC-1 ----APTADQAMAWATDYDAPLHPAYTYLWHDIDVEQFRALADAVADAHT 524
A. fulgidus ----KISEEALKLCDFHVLHPDYTYLWHDISVEDYRILRNFVSDNGI 505
T. acidophilum ----DIDQFSAVEISRKYGIPLPHFYTYLWHDISFEDLEFLVKNAEQWSI 479

T. species 9°N IEWDEFKRL-----KFAKRVILENDPQ--IKRYLELLGLPRLER 603
T. kodakaraensis IEWADEFKRN-----RFAKRVILENDKN--IKRYLELLGLPRLER 604
P. furiosus IEWGTFRGI-----KFAKKIEISLDDLGLSKRTLELLGLPHTVRE 598
M. jannaschii -GKEDSLEG-----KKVWIVDLEIEEDKKAKRILELIGCCHLVRN 556
M. maripaludis -GKYNPSND-----SWELNYDPEDEEILNAKRYLELIGCPHTVME 551
H. volcanii VAAEADGGTTAALEHDNEPEHGLEGTVLVDNAPEIREALEHLLVAHRQTD 581
H. species NRC-1 DASDDDD-----RGVLVDHTTTVRETEALLVTHHQGD 558
A. fulgidus IEGKHGK-----SVLLLPHYDSRVKEILEALLEHKVRE 538
T. acidophilum TEDGMRVPY-----PAFDVFIIRLGIEFRRSG 505

T. species 9°N TEDRRKVIVIDYVSSAALTPLGN-----LEWEFKAKPFYTVIIDII 644
T. kodakaraensis VEKRRKVIIVVEYVWSAALTPLGN-----LEWEFKAKPFYTVIIDII 645
P. furiosus G-----IVVVVDYVWSAALTPLGN-----LEWEFKAKPFYTVIIDII 634
M. jannaschii K---KVIIEEYVLLYSVGFVDENK---KDLVENIEKILESAKNSMHII 599
M. maripaludis E---KVEIFEYVFLYSVGYDFDEK---RDMIDNIDEKLQNTKNNMHFI 594
H. volcanii E---ALRVVPVRELARSLGLTDDRERTWELDDLSEARARTWDDGDNAVEAV 628
H. species NRC-1 D---TIRVDDWVRLARSLGVTESLDREWET--LSEAAAEPW---NAVRAV 600
A. fulgidus S---FIVIETWRAFIRCLGLDEKLSKVSEVS-----GKDVLEIV 574
T. acidophilum D---YLIIRDYVLLISVGYDVRNGK-----IVNVKKYERKGSVMETV 545

T. species 9°N NESNP IKLRDRGISWIGARMGRPEKAKERKMKKPPVQVLFPIGLAGGQSRD 694
T. kodakaraensis NENNRIKLRDRGISWIGARMGRPEKAKERKMKKPPVQVLFPIGLAGGQSRD 695
P. furiosus NENNOIKLRDRGISWIGARMGRPEKAKERKMKKPPVQVLFPIGLAGGSSRD 684
M. jannaschii NLLAPFEVRNRYVYVIGARMGRPEKAAPKMKKPPVNGLFPIGNAGGQVRL 649
M. maripaludis NTIAPFEIRRNAYIYVIGARMGRPEKAARAKMKKPPVNGLFPIGNAGALVRL 644
H. volcanii NEVAPFNVRERAPTRIGNRMGRPEKSERDLSFAVHTLFPVIGDAGGQSRD 678
H. species NRC-1 NEVAPFVQERAPTRIGNRMGRPEKSERDLSFAVHTLFPVIGDAGGQSRD 650
A. fulgidus NGISGIKVRPKALSRIIGARMGRPEKAKERKMKKPPPHILFPVGMAGGNTRD 624
T. acidophilum NYLSGLIIKPRAPTRVSRILGRPEKAGDKMKKPPMVHSLFPVVEYGEARS 595

T. species 9°N IKKAAEEG-----KTAKVEIAFFKPKCGHTGPEHLCPVCGTRKELLW 737
T. kodakaraensis IKKAAEEG-----KTARVEIAFFKPKCGHVGPPEHLCPVCGTRKELLW 738
P. furiosus IKKAAEEG-----KIAEVEIAFFKPKCGHVGPETLCPVCGTRKELIW 727
M. jannaschii INKAVEEN-----NTDDVDVSYTRPNCCKISLYRVCPFCGT----- 686
M. maripaludis INKAVEEG-----KTDEIEIANVKES--CGKVSLYRTPFCPCGN----- 680
H. volcanii VGDAAARHR--GESGKRQISVRLGQRKCPDCCGAFGFKSKCPDCCGHTEPHY 727
H. species NRC-1 VADAARYAPDMSDTPGEIPVRVGRDVPSCDEHTYESRCPDCCDWTDPHY 700
A. fulgidus IKNAINVTKSYNAKKGIEVEIAIRKCPCCGKETFWLKCQVCGELTEQLY 674
T. acidophilum IIGANKNS-----EGSYKAEVFFYRNSCGFETPTPVCPCCG----- 633

T. species 9°N HCPKCNVDYPESEAKEFGFRCPDVELKPYAEREIKPSELLRRAMDNVK 787
T. kodakaraensis HCPKCGADYPESDAKDFNYRCPKCDVELKPYAEREIKPADLLRQAMDNVK 788
P. furiosus TCPKCGAETNSQAEGYSYSCPKCNVCLKPFTKRKIKPSELLNRAMENVK 777
M. jannaschii -----KVELDNFGRIKAPLKDYWYAAALKRLG 712
M. maripaludis -----SVEPTGPSRIKLPKIDYWKTLLENLK 706
H. volcanii ECDDCG--SVIEPDESGRVYCERCEWDVESAEWQDVLNSEYRDALERVG 775
H. species NRC-1 ECRDCG--AVATPDESGRVEPCNCRDLNVTQVIDINDEYHGALRAVG 748
A. fulgidus YCPSCR--MKNTSS-----VCESGCRECEGYMKRVDLRELYEEAIALNG 717
T. acidophilum -----HCSPLGKGTGSIDLESILNRAESILG 659

T. species 9°N VYGI--DRLKGVKGMTSGYKMAEFLKGLLRVKNDVYVFKDGTIRFDATD 835
T. kodakaraensis VYGI--DRLKGVKGMTSGYKMAEFLKGLLRVKNDVYVFKDGTIRFDATD 836
P. furiosus VYGV--DKLKGVMGMTSGWKIAEFLKGLLRKANEVYVFKDGTIRFDATD 825
M. jannaschii INKP--GDVCKIKGMTSKQKIVEFLEKAILRAINEVYVFKDGTIRFDCTD 760
M. maripaludis INKP--GDVCKIKGMTSKDKIIEFLEKAILRAKNNIYVFKDGTIRFDCTD 754
H. volcanii ERESSQILKGVKGLTSANKTPEFIEKGVLRRAKHDVVSFKDGTIRYDMDT 825
H. species NRC-1 ERENADFQLKGVKGLLSAEKTPPEMAKGVLRRAKHDVTAFKDGTIRYDMDT 798
A. fulgidus EYDS--FDTIKGVKGMTSKTKIPERLEKGIILRVKHGVVFKDGTARFDATD 766
T. acidophilum ISLDSLKEFKGVKGLMSKEKVAEPIEKGIILRAVHDISVKNKGTIRFDMSD 709

T. species 9°N APIITHFKKEIGVSVEKLRELGYTHDFEGKPLERDDQIVELKVODIILSY 885
T. kodakaraensis APIITHFKKEIGTSVEKLRELGYTHDFEGKPLERDDQILELKVODVILPY 886
P. furiosus APIITHFREREIGVSVEKLRELGYTHDFEGKPLVSEDQIVELKPODVILSK 875
M. jannaschii VEVTHFKKEINVTVEKLRELGYDKDIYGNELVDGQVVELKPODVIPE 810
M. maripaludis VEVTHFKKEIVHPIEKLSGLYKLDIHGNPLENEDQVLELKVODVIPE 804
H. volcanii LQVTAVRPEELDVTADHFRELGYETDIDGEPFRFDDQIVELKVODIVLSN 875
H. species NRC-1 LQVTAVTFAELDVTAGQFRELGYNQDIHGDPLEHDDQIVELRVQDVVLS 848
A. fulgidus LPIITHFKKEIGVSVEKLRELGYERDYKGAELKNENQIVELKPODVIIPK 816
T. acidophilum IPIITHFRYREIGIDERTLADLGYEVR-----DVNELFPODVIIPR 749

<i>T. species 9°N</i>	EAGKYLKVARFVDDLLEKFFYGLPRFYNAEKMEDLIGHLVIIGLAPHTSAG	935
<i>T. kodakaraensis</i>	EAGRYLLKVARFIDDDLLEKFFYGLPRFYNAEKMEDLVGHLLVIIGLAPHTSAG	936
<i>P. furiosus</i>	EAGKYLLRVARFVDDLLEKFFYGLPRFYNAEKMEDLIGHLVIIGLAPHTSAG	925
<i>M. jannaschii</i>	SCAEYFVKVANFIDDDLLEKFFYKVERFYNVKKKEDLIGHLVIIGMAPHTSAG	860
<i>M. maripaludis</i>	SCMDYFLNVSGFIDDDLLEKFFYKDRFYNVNTRDELVGHLLIIGMAPHTSAG	854
<i>H. volcanii</i>	GAQHMMQTADFVDDLLDQFYGLDRFYIEERDDLIIEIVFGMAPHTSAA	925
<i>H. species NRC-1</i>	GAADHMLKTADFVDDLLTQYYGLDAFYDLDDRDBLVGELVFGMAPHTSAA	898
<i>A. fulgidus</i>	SGAEYLLRVANFIDDDLVKFFYKMEPFYNAKSVEDLIGHLVIIGLAPHTSAG	866
<i>T. acidophilum</i>	KAAKYLNFVSRFIDDDLVKYYNMPPFYSLESEEDLIGHLIIIGLAPHTSGG	799
<i>T. species 9°N</i>	IIIGRIIGFSDVLVGYAHPYHAAKRRNCDGDEDAVMLLLDALLNFSKYYL	985
<i>T. kodakaraensis</i>	IIIGRIIGFSDVLVGYAHPYHAAKRRNCDGDEDAVMLLLDALLNFSKYYL	986
<i>P. furiosus</i>	IVGRIIGFVDALVGYAHPYHAAKRRNCDGDEDSVMLLLDALLNFSRYYL	975
<i>M. jannaschii</i>	MVGRIIGYTKANVGYAHPYHAAKRRNCDGDEDSFFLLLDALNFSKFFL	910
<i>M. maripaludis</i>	MVGRIIGYSNANVGYAHPYHAAKRRNCDGDEDAFFLLLDAFMNFSKRFL	904
<i>H. volcanii</i>	VVGRVVGFTTAAVGYAHPYHAAKRRNCDGDEDCVMLLMDGLLNFSSKYL	975
<i>H. species NRC-1</i>	VVGRVAGFTSASVGYAHPYHAAKRRNCDGDEDCVMLLMDGLINFSSKYL	948
<i>A. fulgidus</i>	VLGRIIGFSDVLVGYAHPYHAAKRRNCDGDEDCFMLLLDGLLNFSSKFL	916
<i>T. acidophilum</i>	VVGRIGFSDVNAFYAHPYHAAKRRNCDGDEDSVMLLMDGLNFSARYL	849
<i>T. species 9°N</i>	PEKRRGGKMDAPLVVTTTRLDPREVDSEVHNMDVVRYYPLEFYEATYEMKSP	1035
<i>T. kodakaraensis</i>	PEKRRGGKMDAPLVVTTTRLDPREVDSEVHNMDVVRYYPLEFYKATYELKSP	1036
<i>P. furiosus</i>	PEKRRGGKMDAPLVITTRLDPREVDSEVHNMDVVRYYPLEFYEATYELKSP	1025
<i>M. jannaschii</i>	PDKRRGGQMDAPLVLTITLDPKVEVDGEVHNMDTMWSYPLEFYKTELEMPSP	960
<i>M. maripaludis</i>	PDKRRGGQMDAPLVLTITLDPKVEVDGEVHNMDSMWEYPLEFYKSLGIAPI	954
<i>H. volcanii</i>	PDKRRGGQMDAPLVMSRRIDPSEIDDEAHNMDIVRQYREFYEAATLRMEDP	1025
<i>H. species NRC-1</i>	PDKRRGGRMDAPLVMSRRIDPAEIDDEAHNMDIDREYREFYEAATRELADP	998
<i>A. fulgidus</i>	PDKRRGGQMDAPLVLTALVDPREVDKVEVHNMDIVERYPLEFYEATMRFPSP	966
<i>T. acidophilum</i>	PSTRGGGLMDAPLVLSVLINDEIDKEALNVDTLSTRYPLFYEAERHASP	899
<i>T. species 9°N</i>	KE-IKFIERVEDRLGKPEMYEGIKFTHDIDDIGLGPKMSLYKQGLDMVEK	1084
<i>T. kodakaraensis</i>	KE-VKVIERVEDRLGKPEMYEGIKFTHDIDDIGLGPKMSLYKQGLDMEEK	1085
<i>P. furiosus</i>	KELVRVIEGVEDRLGKPEMYEGIKFTHDIDDIALGPKMSLYKQGLDMEEK	1075
<i>M. jannaschii</i>	KEVKFEMETVEDRLGKPEQYEGIGYTHETSRIIDLGPKVCAYKTLGSMLEK	1010
<i>M. maripaludis</i>	KEIKKMMETIEDRLDKDSQYEGIGYTHETSRIIDEGPPICAYKTLGSMMEK	1004
<i>H. volcanii</i>	DDWEDEVTAEEYLGTDRREYTFDHTDFTDIAAGPDL SAYKTLGSMMDK	1075
<i>H. species NRC-1</i>	EDVADLITLAEESTVGTDEEYTFGHTHATSNIHLGPSLSAYKTLGSMMDK	1048
<i>A. fulgidus</i>	KEMEDYVEKVKDRLLKDESRCFLFFTHDENTIAAGVKESAYKSLKTMQDK	1016
<i>T. acidophilum</i>	AEIEDTMMTMKVRIKKTGTIMSSYTMDSIDNSGVLVSSYKTLGTIDEK	949
<i>T. species 9°N</i>	VERQLALAEIRIAVDEHHVAETILNSHLIPDLRGNLRSFTTQEFRCVKCN	1134
<i>T. kodakaraensis</i>	VARQLALAEIRIAVDEHHVAETILNSHLVPLDRGNLRSFTTQEFRCVKCN	1135
<i>P. furiosus</i>	VKROLTLAEIRIAVDQHYVAETILNSHLIPDLRGNLRSFTTQEFRCVKCN	1125
<i>M. jannaschii</i>	TTSQLSVAKKIRATDERDVAEKVIQSFHFPDLIGNLRAFSRQAVRC-KCG	1059
<i>M. maripaludis</i>	TSAQLAVAKKIRATDERDVAEKVIQSFHFPDLIGNLRAFSRQGVRC-KCG	1053
<i>H. volcanii</i>	MDAQLFLARKLRAVDETDVAERVIEYHFLPDLIGNLRAFSRQETRCCLDCG	1125
<i>H. species NRC-1</i>	MDAQLFLARKLRSVAETDVAERVIEYHFLPDLIGNLRAFSRQETRCCLDCG	1098
<i>A. fulgidus</i>	VYROMELARMIVAVDEHDVAERVINVHFLPDLIGNLRAFSRQEFRCRTRCN	1066
<i>T. acidophilum</i>	INEQLGLAKKLRAVDADDVAARVISTHFLPDMYGNFKKFFSDEFRCRTRCN	999
<i>T. species 9°N</i>	TKYRRPPLIGRCPKCGG-KIVLTVSKGAVEKYLPTAKMLVTRKYVKDYTR	1183
<i>T. kodakaraensis</i>	TKYRRPPLTGKCPKCGG-KIVLTVSKGAEIKYLPTAKMLVTRKYVKDYTR	1184
<i>P. furiosus</i>	TKYRRPPLDGKCPVCGG-KIVLTVSKGAEIKYLGTAKMLVANYNVKPYTR	1174
<i>M. jannaschii</i>	AKYRRIPPLKGGKPKCGS-NLILTVSKGAVEKYMVAEKMAEYVNVNDYIK	1108
<i>M. maripaludis</i>	AKYRRMPLKGVCRKCGS-RLILTVSKGAVEKYMNVQSQTMAEKYDASDYIK	1102
<i>H. volcanii</i>	EKYRRMPLSGDCRECCGG-RVNLTVHQS SVNKYMDTAIQVAEEFDCRDYTK	1174
<i>H. species NRC-1</i>	EKYRRMPLSGDCRECCGG-RVNLTVHQS SVNKYMDTAMRVATEYDCREYTK	1147
<i>A. fulgidus</i>	TKYRRIPPLVGGKCLKCGN-KLTLTVHSSIMKYLELSKFLCENFNVSSYTK	1115
<i>T. acidophilum</i>	AKYRRIPPLSGRCQKCGSTSLTLTIHKESVVKYLNETLKI AENYRLPDYMLK	1049
<i>T. species 9°N</i>	ORICLTEKDIKTLFETVLPKQRTLLGFSADVCEKMIKERTGSSNGKNGY	1233
<i>T. kodakaraensis</i>	ORICITEKDIKTLFENVFPEKQRTLMGFSADICEKMKV KERTGHSNGKNGY	1234
<i>P. furiosus</i>	ORICLTEKDIDSLFEYLFPEAQLTLIVDPNDICMKMIKERTG-ETVQGG	1223
<i>M. jannaschii</i>	ORLKIIKEGINSIFE-----	1123
<i>M. maripaludis</i>	ORLEIIKSGIDSLEFV-----	1117
<i>H. volcanii</i>	ORLEVLEKSLESVFE-----	1189
<i>H. species NRC-1</i>	ORLEIMDRRLESVFE-----	1162
<i>A. fulgidus</i>	ORLMLLEQEI KSMFE-----	1130
<i>T. acidophilum</i>	ARIDNLRARTIKETFP-----	1064
<i>T. species 9°N</i>	LDGFNGKNGKAKK-----AKAENEAKREKMPKAEKSKDLK-----	1268
<i>T. kodakaraensis</i>	LDEFNGKNGKASKKSGSLASKLSGKGPEPSKKKESAKPKRSEKVKNLTSF	1284
<i>P. furiosus</i>	LENFNSSGNNGKK-----IEKKEKKAK-----	1245

<i>M. jannaschii</i>	-----NEKSRQ-----	1129
<i>M. maripaludis</i>	-----NDKRRQ-----	1123
<i>H. volcanii</i>	-----NDKNKQ-----	1195
<i>H. species NRC-1</i>	-----DDTNKQ-----	1168
<i>A. fulgidus</i>	-----NGTEKQ-----	1136
<i>T. acidophilum</i>	-----DTEEEEKPE-----	1073
<i>T. species 9°N</i>	-----KEVKKEKAKTR-RKRISLDEFFGS-	1291
<i>T. kodakaraensis</i>	EAAAKNEQARGTAGNAKKAESEKPKRKRKRGISLDEFFGS-	1324
<i>P. furiosus</i>	-----EKPKKK--KVISLDDFFSKR	1263
<i>M. jannaschii</i>	-----VKLSDEFFKIG	1139
<i>M. maripaludis</i>	-----VKIEDFFK--	1131
<i>H. volcanii</i>	-----SGIADFFM---	1202
<i>H. species NRC-1</i>	-----SGISDFFM---	1175
<i>A. fulgidus</i>	-----VSISDFFV---	1143
<i>T. acidophilum</i>	-----PREVKITGLDMY-	1085

Supplementary Figure 1. Multiple sequence alignment of polD amino acid sequences. (A)

The amino acid sequences of polD-S from 9°N, *Thermococcus kodakarensis* (GI:57641837), *Pyrococcus furiosus* (GI:2967437), *Methanocaldococcus jannaschii* (GI: 499172620), *Methanococcus maripaludis* (GI:45357571), *Haloferax volcanii* (GI:490144623), *Halobacterium* sp. NRC-1 (GI:15791200), *Archaeoglobus fulgidus* (GI: 499181746) and *Thermoplasma acidophilum* (GI:499203109) were aligned using ClustalW. Conserved amino acids D507 and H554 in the 3'-5' exonuclease active site that were mutated to alanine are highlighted in black. (B) PolD-L (lacking inteins) amino acid sequences from 9°N, *Thermococcus kodakarensis* (GI:57641838), *Pyrococcus furiosus* (GI:2967437), *Methanocaldococcus jannaschii* (GI:499173567), *Methanococcus maripaludis* (GI:45047149), *Haloferax volcanii* (GI:48927395), *Halobacterium* sp. NRC-1 (GI:15791139), *Archaeoglobus fulgidus* (GI:11499311), and *Thermoplasma acidophilum* (GI:16081956) were aligned using ClustalW. Catalytic aspartate residues (D964 and D966) essential for DNA polymerization (Shen et al. 2001) are highlighted in black. Conserved amino acids with 100% identity (red), 90% identity (green) or 74% identity (yellow) are highlighted.