Supporting Information

Divergence of Chemical Function in the Alkaline Phosphatase Superfamily: Structure and Mechanism of the P-C Bond Cleaving Enzyme Phosphonoacetate Hydrolase[+]

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Contents: Eleven pages total, which contain the multiple alignment of phosphonoacetate hydrolase amino acid sequences (Figure SI1).

Figure SI1. The amino acid sequence alignment of PAc hydrolase orthologs which possess 45 % sequence identity or greater in pairwise matches. The alignment was generated in ClustalW (http://www.ch.embnet.org/software/ClustalW.html)

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tr|B6JE67|B6JE67_OLICO      VISQG-FYTIADAAMPTFTNPNNMSIVAGAPPIVHGISGNYYLDKKTG--
tr|B9K3S9|B9K3S9_AGRVS      FLNDG-FYAIADAAMPTFTNPNNVSIVCGAPPVVHGVAGNYYLDRETK--
tr|Q215P4|Q215P4_RHOPB      FKSGG-YIGTALATVPTTTNTNNTSIVTGVSPAVHGINGNYYLDADTG--
tr|A9G6L6|A9G6L6_SORC5      TLAAGGLYVRGRGQIPSFTNPNNVSIVTGQPARVHGISGNYYLDAATG--
tr|C5AM01|C5AM01_BURGB      MMRDG-AALGADGVIPSLTHANQLSIACGAPPALHGICGNTIHDAGAQQG
tr|B3QHC0|B3QHC0_RHOPT      LRATG-YVGTALATVPTTTNTNNTSIVTGAPPAIHGINGNYYLDADTG--
tr|Q0CWK4|Q0CWK4_ASPTN      FIQTG-FHRTANCAMPSLTNPNNLSIITGVPTKVHGVSGNYYLDKTTG--
tr|C1DSK8|C1DSK8_AZOVD      FVQEG-YSAVATGSMPSFTCPNNMSIITGVPTARHGISGNFYLDTQTW--
tr|B8MDJ2|B8MDJ2_TALSN      FVENG-FHATAKSCMPSFTNPNNVSIITGAPPSIG-IAGNFFLDRETG--
tr|Q01YC7|Q01YC7_SOLUE      IMTEG-FVSIAVGAMPSFTNPNNISVITGVPPSVHGISGNFFLNPATG--
                                .       .   :*:  *   *:  *:   *  ..    :  **     :


tr|Q51782|Q51782_PSEFL      --EEVLMNDAKYLRAPTILAEMAKAGQLVAVVTAKDKLRNLLGHQLKG--
tr|Q50HR5|Q50HR5_9PSED      --EEVLMNDAKYLRAPTILAEMAKAGQLVAVVTAKDKLRNLLGHQLKG--
tr|Q50HR6|Q50HR6_PSEPU      --EEVLMNDAKYLRAPTILAEMAKAGQLVAVVTAKDKLRNLLGHQLKG--
tr|B1GB52|B1GB52_9BURK      --TEVLMNDAKYLRAPTILAEMARAGQRVAVVTAKDKLRSLLGHRLEG--
tr|B3R8G0|B3R8G0_CUPTR      --AEVLMNDARYLRAPTVLAAAAQAGAKVAVVTAKDKLRALLGHGLQG--
tr|Q0K2Z6|Q0K2Z6_RALEH      --AEVLMNDARYLRAPTVLAAAAQAGASVAVVTAKDKLRALLGHGLKG--
tr|Q122G7|Q122G7_POLSJ      --TEVMMNDPKWLRAPTLLAALADAGQSLVVVTAKDKLRKLLGHQMKG--
tr|A1WGW5|A1WGW5_VEREI      --EEVMMNDPKYLRADTLLAAFADAGAKVAVVTAKDKLRKLLGHKLKG--
tr|Q46NR5|Q46NR5_RALEJ      --AEVMMNDPKYLRAPTVLAAFANAGAKVAVVTAKDKLRKLLGHGMTG--
tr|B1FA18|B1FA18_9BURK      --AEVLMNDPKYLVAPTVLATFAERGARVAVVTAKDKLRRLLGKGLKG--
tr|Q13P91|Q13P91_BURXL      EGAEVMMNDPAYLRAGTLLAAAAEGAAVAVVTAKDKLRRLLGWQLKG--
tr|B9BDA8|B9BDA8_9BURK      --AEVLMNDPKYLVAPTVLATFAEQGARVAVVTAKDKLRRLLGKGLKG--
tr|Q39BS9|Q39BS9_BURS3      --AEVLMNDPKYLVAPTVLATFAEQGAKVAVVTAKDKLRRLLGKGLKG--
tr|B1K0L1|B1K0L1_BURCC      --AEVLMNDPKYLVAPTVLATFAEQGARVAVVTAKDKLRRLLGKGLKG--
tr|B1GBC6|B1GBC6_9BURK      AGAEVMMNDPAYLRVGTLLAAASEAGAAVAVVTAKDKLRRLLGWQLNG--
tr|Q0JZU4|Q0JZU4_RALEH      RGEEVMMNDPKYLRAGTILAAFADAGASVAVVTAKDKLRRLLGHGMQG--
tr|B2JLS9|B2JLS9_BURP8      KGAEVMMNDPAYLRAPTLLAAAADAGAAVAVVTAKDKLRRLLGNKMTG--
tr|B2TDW9|B2TDW9_BURPP      EGAEVMMNDPAYLRAGTLLAAAAEGAAVAVVTAKDKLRRLLGWQLKG--
tr|A9AC80|A9AC80_BURM1      --AEVLMNDPKYLVAPTVLATFAEQGARVAVVTAKDKLRRLLGKGLKG--
tr|B3RBG9|B3RBG9_CUPTR      RGEEVMMNDPKYLRAGTILAAFAEDGASVAVVTAKDKLRRLLGHGMRG--
tr|Q2T3L1|Q2T3L1_BURTA      AGAAVMMNDPAYLRAGTLLAAAADAGAKVAVVTAKDKLRRLLGWRMRG--
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tr|Q63NF1|Q63NF1_BURPS    AGAAVMMNDPAYLRAGTLLAAAADAGAKVAVVTAKDKLRRLLGWRMRG--
tr|Q62CM0|Q62CM0_BURMA    AGAAVMMNDPAYLRAGTLLAAAADAGAKVAVVTAKDKLRRLLGWRMRG--
tr|A4JJS8|A4JJS8_BURVG    RGAEVMMNDPSYLRAGTLLAAASDAGARVAVVTAKDKLRRLLGWRMNG--
tr|B9BUA1|B9BUA1_9BURK    RGAEVMMNDPAYLRAGTLLAAASDAGARVAVVTAKDKLRRLLGWQLNG--
tr|Q92UV8|Q92UV8_RHIME    --EEVMMNDPKFLRAPTIFQAFYDAGARVAVVTAKDKLRALLGKGLRFDE
tr|A6UJ29|A6UJ29_SINMW    --EEVMMNDPKFLRAPTIFQAFYDAGARVAVVTAKDKLRALLGKGLRFDE
tr|C8SFV8|C8SFV8_9RHIZ    --KEVMMNDPRFLRAPTVFQAFYDAGAKVAVVTAKDKLRALLGKGLAFDE
tr|B6B654|B6B654_9RHOB    --EEVMMNDVRFLRAPTIFSQFYEAGCRVAVVTAKDKLRALLGAGLRFDE
tr|Q7WNM7|Q7WNM7_BORBR    --REIMMTDAALLRGDTLLGLMSQAGVPTAAITAKDKLRKVLGHGLRG--
tr|C7D6N1|C7D6N1_9RHOB    --EEVMMNDVRFLRAPTVFSKFYEAGARVAVVTAKDKLRALLGAGLKFDE
tr|A3SHW2|A3SHW2_9RHOB    --EEVMMNDVRFLRAPTVFQSFYDAGARVAVVTAKDKLRALLGAGLKFDE
tr|B1PM60|B1PM60_9PROT    --EEVMMNDVRFLRAPTVFSKFYEAGARVAIVTAKDKLRALLGAGLKFDE
tr|D0RQ73|D0RQ73_9RICK    --KETLMNDDSFLRASTIFEAFEKAGAKIAVITAKDKLKKLLGK----NL
tr|B1A0M6|B1A0M6_9BACT    --EEVMMNDVRFLRAPTVFSKFYEAGARVAIVTAKDKLRALLGAGLKFDE
tr|B6JE67|B6JE67_OLICO    --KEVMITDASLVSSGTVLAGLADAGVRVAAITAKDKLRKMLGSGLKG--
tr|B9K3S9|B9K3S9_AGRVS    --QEVMMLDARLMRAPTILSQFSKAGAKIAVVTAKDKLRKALAHEMQG--
tr|Q215P4|Q215P4_RHOPB    --EEIMVTDARRLRCGTILGAMSKAGVKTAVVTAKDKLLKVLAFEMDG--
tr|A9G6L6|A9G6L6_SORC5    --EEVPMNDPRFLRVPTLFEKMEQAGVRTLCVTAKDKLRALLGACREGGP
tr|C5AM01|C5AM01_BURGB    HGADIALNQAADLRADTVLAAAARAGARVAVVTAREKLRRLLGTGLRG--
tr|B3QHC0|B3QHC0_RHOPT    --EEIMVTDARRLRCGTILGAMSKAGVRTAVVTAKDKLLKVLAYEMDG--
tr|Q0CWK4|Q0CWK4_ASPTN    --QEHMVLDDSLVHGSTILEQMANAGVRVAAITAKDKLRRIINRGLSPA-
tr|C1DSK8|C1DSK8_AZOVD    --EPVVMTGPELLRGETILAGFAEAGARVVSITAKDKLRRQLGKGLDVG-
tr|B8MDJ2|B8MDJ2_TALSN    --KETMITDS-LLRGSTILEQMSCRGVRVAAVTHKDKLRKILAHGLK---
tr|Q01YC7|Q01YC7_SOLUE    --QETMMDQPQFLRADSILATFSEHGAKVVALTAKDKLAKILAYKLQHG-
                                  :       :    :::      *        :* ::**     :


tr|Q51782|Q51782_PSEFL    ---ICFSAEKADQVNLEEHGVENILARVGMPVPSVYSADLSEFVFAAGLS
tr|Q50HR5|Q50HR5_9PSED    ---ICFSAEKADQVNLEEHGVENILARVGMPVPSVYSADLSEFVFAAGLS
tr|Q50HR6|Q50HR6_PSEPU    ---ICFSAEKADVSLEEHGVENILARVGMPVPSVYSADLSEFVFAAGLS
tr|B1GB52|B1GB52_9BURK    ---ICFSAEKADEVTRQEHGIDNILARVGMPVSVYSAELSEFVFAAGLS
tr|B3R8G0|B3R8G0_CUPTR    ---ICFSAEKADQANLAENGIDDVLRKVGMPLPSVYSADLSEFVFAAGVA
tr|Q0K2Z6|Q0K2Z6_RALEH    ---ICFSAEKADQATIEDNGIDDVLRKVGMPLPSVYSADLSEFVFAAGVA
tr|Q122G7|Q122G7_POLSJ    ---ICFSSEKADQVTLAENGIEDVLGLVGRPLPDVYSADLSEFVFAAGVK
tr|A1WGW5|A1WGW5_VEREI    ---ICYSSEKSDQVSMAENGIDDVLGMVGLPVPSVYSAGLSEFVFASGVK
tr|Q46NR5|Q46NR5_RALEJ    ---ICFSSEKADQVTQEENGITGVVEMVGMPVPSVYSAALSEFVFAAGVK
tr|B1FA18|B1FA18_9BURK    ---ICFSSEKADSIEENGIDNVLELVGKPVPSVYSADLSEFVFAAGVR
tr|Q13P91|Q13P91_BURXL    ---ICFS-AEADKVTLEENGIGEVLDLVGMPVPDVYSAGLSEFVFAAGVR
tr|B9BDA8|B9BDA8_9BURK    ---ICFSSEKADEANLDENGIDNVLELVGRPVPSVYSAELSEFVFAAGVR
tr|Q39BS9|Q39BS9_BURS3    ---ICFSSEKADEASIEENGIDNVLELVGKPVPSVYSADLSEFVFAAGVR
tr|B1K0L1|B1K0L1_BURCC    ---ICFSSEKADEANVEENGIDHVLELVGKPVPSVYSADLSEFVFAAGVR
tr|B1GBC6|B1GBC6_9BURK    ---ICFSAEKADVTRAENGIDEVLDLVGLPLPDVYSAALSEFVFAAGVR
tr|Q0JZU4|Q0JZU4_RALEH    ---ICFSSEKADQATVEENGIDGVVELVGMPVPDVYSAELSEFVFAAGVR
tr|B2JLS9|B2JLS9_BURP8    ---ICFSAEKADTVTHEENGIDEVLGLVGRPLPDVYSADLSEFVFAAGVR
tr|B2TDW9|B2TDW9_BURPP    ---ICFSAEKADKVTFEENGIGEVLDLVGMPVPDVYSAGLSEFVFAAGVR
tr|A9AC80|A9AC80_BURM1    ---ICFSSEKADEANLDENGIDNVLELVGRPVPSVYSAELSEFVFAAGVR
tr|B3RBG9|B3RBG9_CUPTR    ---ICFSSEKADQATVAENGIDGVLELVGMPVPDVYSAELSEFVFAAGVR
tr|Q2T3L1|Q2T3L1_BURTA    ---VCFSAEKANQANLGENGIADVLDFVGLPSPDVYSAALSEFVLAAGVR
tr|Q63NF1|Q63NF1_BURPS    ---VCFSAEKANQANLGENGIADVLDFVGLPSPDVYSAALSEFVLAAGVR
tr|Q62CM0|Q62CM0_BURMA    ---VCFSAEKANQANLGENGIADVLDFVGLPSPDVYSAALSEFVLAAGVR
tr|A4JJS8|A4JJS8_BURVG    ---ICFSAEKAAQANLAENGIVDVLDWVGLPSPDVYSAALSEFVFAAGVR
tr|B9BUA1|B9BUA1_9BURK    ---VCFSAEKAAQANLAENGIADVLDWVGLPSPDVYSAALSEFVFAAGVR
tr|Q92UV8|Q92UV8_RHIME    GRAVCFSSEKSDKATRAEHGIDNASAWLGRPVPEVYSAALSEFVFAAGVK
tr|A6UJ29|A6UJ29_SINMW    ERAICFSSEKSDKATPEEHGIDNASGWLGRPVPEVYSAALSEFVFAAGVK
tr|C8SFV8|C8SFV8_9RHIZ    GRALCFSAEKSDTTTVAEHGIDNASKHFGLPVPEVYSAELSEFVFAAGVQ
tr|B6B654|B6B654_9RHOB    NRAVAFSSERSGETTKAEHGIDNASAWLGMEVPEVYSAELSEFVFAAGVK
tr|Q7WNM7|Q7WNM7_BORBR    ---ICFSSEKADQCSEAEHGVADVAALVGRPRPDMYSGDLSLYVLDAGLA
tr|C7D6N1|C7D6N1_9RHOB    DRAKCFSAERSDTSTTEEHGQAEASKWLGMAQPEVYSAELSEFVFAAGVK
tr|A3SHW2|A3SHW2_9RHOB    GRAKCFSAERADSTTEAEHGQAAASSWLGMAQPEVYSADLSEFVFAAGVK
tr|B1PM60|B1PM60_9PROT    DRAVCFSAEKSDTSTKDIHGQDAASKWLGMAQPEVYSAELSEFVFAAGVK
tr|D0RQ73|D0RQ73_9RICK    KEAICFSSEKADQANLKDNRIENVLELTKKPLPEVYSSDLSEFIFAAAVE
tr|B1A0M6|B1A0M6_9BACT    DRAVCFSAEKSGTSTKDIHGQDAASKWLGMAQPEVYSAELSEFVFAAGVK
tr|B6JE67|B6JE67_OLICO    ---ICFSSEKANEATLAENGIENVEALVGRKTPGMYSPDLSLFVLDAGIK
tr|B9K3S9|B9K3S9_AGRVS    ---IAVSAQYADKCTIEENGIEDLTGLVGRGTPDQYSSDLSLFVLDAGIR
tr|Q215P4|Q215P4_RHOPB    ---IAFSSEHPNSADLTALGFKSGEDMVGRAKPDQYSADLSLFALDAGIK
tr|A9G6L6|A9G6L6_SORC5    -RPISLSAEKAHEQAIPEHGIGSITAAVGRENPSIYDWDISHYAMEMGLA
tr|C5AM01|C5AM01_BURGB    ---ICFSAEKAGQTSLAENGIADALDFVGLPSPDVYGAALSEFVLAAGVR
tr|B3QHC0|B3QHC0_RHOPT    ---IAFSSEHPNVADLTALGFKSGEELVGRGRPDQYSADLSLFALDAGVR
tr|Q0CWK4|Q0CWK4_ASPTN    NGAICFSAQCAAECTLQEHGIADVEEWLGLPSPPQYSGELSLFVLEAGLK
tr|C1DSK8|C1DSK8_AZOVD    QGHVSFSSEFADRCTLAENGIEKVLEYVGMPKPDMYSMELSLFVLEAGIR
tr|B8MDJ2|B8MDJ2_TALSN    -GAICFSAECARDCTLEENGIENVEEWIGRQAPSQYSGDLSLFVLDAGIK
tr|Q01YC7|Q01YC7_SOLUE    ---ISFSAEKADQCTKQNNGIDNCLAYVGRPLPSAYSADLSLFVLEAGIR
                              .  *    .                         *  *.  :*  : :   .:


tr|Q51782|Q51782_PSEFL    LLTNERPDFMYLSTTDYVQHKHAPGTPEANAFYAMMDSYFKRYHEQGAIV
tr|Q50HR5|Q50HR5_9PSED    LLTNERPDFMYLSTTDYVQHKHAPGTPEANAFYAMMDSYFKRYHEEGAIV
tr|Q50HR6|Q50HR6_PSEPU    LLINERPDFMYLSTTDYVQHKHAPGTPEANAFYAMMDSYFKRYHEQGAIV
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tr|B1GB52|B1GB52_9BURK        LLREERPDLMYLSTTDYVQHKHAPGTSEANAFYAMMDDYLLRLHAEGAVL
tr|B3R8G0|B3R8G0_CUPTR        LLETERPDLMYLSTTDYIQHKHAPGTAGANAFYAMMDSYLQRLDALGAVI
tr|Q0K2Z6|Q0K2Z6_RALEH        LLETVRPDLMYLSTTDYIQHKHAPGTPQANAFYAMIDSYLQRLDALGAVI
tr|Q122G7|Q122G7_POLSJ        IMQKYHPDVMYLSTTDYVQHKHAPGTDGANAFYRMMDGYLAQLDALGCVI
tr|A1WGW5|A1WGW5_VEREI        LMQRHRPDLMYLSTTDYVQHKAAPGTPDANAFYQMMDGYLRQLDAMGAVI
tr|Q46NR5|Q46NR5_RALEJ        LMERERPDLMYLSTTDYVQHKAAPGSPAANAFYQMMDGYLSQLDALGATI
tr|B1FA18|B1FA18_9BURK        LLETRPIDLMYLSTTDYVQHKCAPGTDGANAFYQMMDTYLKRLDELGAIV
tr|Q13P91|Q13P91_BURXL        LAQTRKLDLMYLSTTDYIQHKFAPGTEGANAFYAMMDGYLAKLDALGWVI
tr|B9BDA8|B9BDA8_9BURK        LLETRPIDLMYLSTTDYVQHKCAPGTPGANAFYQMMDAYLKRLDELGAIV
tr|Q39BS9|Q39BS9_BURS3        LLETRPIDLMYLSTTDYVQHKCAPGTEGANAFYAMMDKYLQRLDELGAIV
tr|B1K0L1|B1K0L1_BURCC        LLETRPIDLMYLSTTDYVQHKCAPGTPGANAFYAMMDTYLQRLDALGAIV
tr|B1GBC6|B1GBC6_9BURK        LAQTRTLDLMYLSTTDYIQHKFAPGTEGANAFYAMMDGYLAQLDALGWVI
tr|Q0JZU4|Q0JZU4_RALEH        LMETRRPDLMYLSTTDYIQHKFAPGSDGANAFYAMMDKYLARLDELGCVV
tr|B2JLS9|B2JLS9_BURP8        LAQTRKLDLMYLSTTDYIQHKWAPGTEGANAFYAMMDGYLSKLDALGWVI
tr|B2TDW9|B2TDW9_BURPP        LAQTRKLDLMYLSTTDYIQHKWAPGTEGANAFYAMMDGYLAKLDALGWVI
tr|A9AC80|A9AC80_BURM1        LLETRPIDLMYLSTTDYVQHKCAPGTPGANAFYQMMDAYLKRLDELGAIV
tr|B3RBG9|B3RBG9_CUPTR        LMETRRPDLMYLSTTDYIQHKFAPGSDGANAFYAMMDKYLARLDELGCVV
tr|Q2T3L1|Q2T3L1_BURTA        LAQNRRADLMYLSTTDYVQHKCAPGSDGANAFYAMMDRYLAALDALGWVI
tr|Q63NF1|Q63NF1_BURPS        LAQSRRADLMYLSTTDYVQHKCAPGSEGANAFYAMMDRYLAALDALGWVI
tr|Q62CM0|Q62CM0_BURMA        LAQSRRADLMYLSTTDYVQHKCAPGSEGANAFYAMMDRYLAALDALGWVI
tr|A4JJS8|A4JJS8_BURVG        LAQTRQVDLMYLSTTDYVQHKCEPGSAGANAFYAMMDRYLAQLDALGWAI
tr|B9BUA1|B9BUA1_9BURK        LAQTRQIDLMYLSTTDYVQHKCAPGSVGANAFYAMTDRYLAQLDALGWAI
tr|Q92UV8|Q92UV8_RHIME        LLREFRPDIMYLTTTDYVQHKYAPGVPEANSFYEMFDRYLAELDGLGAAI
tr|A6UJ29|A6UJ29_SINMW        LLKEFHPDIMYLTTTDYVQHKYAPGVAEANAFYAMFDRYLSELDGLGAAI
tr|C8SFV8|C8SFV8_9RHIZ        LLREFRPDIMYLTTTDYVQHKYAPGVPQANAFYEMFDKYLTELDGLGAAI
tr|B6B654|B6B654_9RHOB        LLQEFRPDVMYLSTTDYIQHKFAPDQQGALDFYAMFDRYLAQLDETGAAI
tr|Q7WNM7|Q7WNM7_BORBR        LLRQGRARLLYLSLSDYIQHKHAPGEPESDAFLRAIDTRLQAFVDAGAVV
tr|C7D6N1|C7D6N1_9RHOB        LLKEWSPDVMYLTTTDYVQHKYSPDQPEAKAFYEMFDKYLTELDAMGAAI
tr|A3SHW2|A3SHW2_9RHOB        LLKEWQPDVMYLTTTDYIQHKFAPEQPEAKAFYEMFDRYLTELDALGAAI
tr|B1PM60|B1PM60_9PROT        LLKEWDPDVMYLTTTDYVQHKYAPDDAQAKSFYEMFDKYLTELDAMGAAI
tr|D0RQ73|D0RQ73_9RICK        IVKKQKLDLIYLSTTDYIQHKCAPGSKMANDFYHMIDGYLQKLYDQGCEI
tr|B1A0M6|B1A0M6_9BACT        LLKEWSPDVMYLTTTDYVQHKYAPDDAQAKSFYEMFDKYLTELDAMGAAI
tr|B6JE67|B6JE67_OLICO        LLEQKKADLFYLSLSDMVQHSAGPGEELADQFNRDVDQRVGRLMELGAVV
tr|B9K3S9|B9K3S9_AGRVS        LLETRPLDILYLSLSDLVQHKHAPDAPEAHEFMKDVDDRLARLIDLGATI
tr|Q215P4|Q215P4_RHOPB        LMETARPQLIYLSTSDYVQHKYKPGDAESNAFHAAVDSRMARLIELGATV
tr|A9G6L6|A9G6L6_SORC5        LHERLSATLLYVSLTDYVQHKEPPRGPMSDRFYARFDALFGEYLDAGFVC
tr|C5AM01|C5AM01_BURGB        LAKTRRVELMYLATHDYVQRKWAPGSAQANTFYAAIDRHLAQLDALEWVV
tr|B3QHC0|B3QHC0_RHOPT        LLETAKPELIYLSTSDYVQHKYQPGEAESNDFHAAVDRRIARLIELGATV
tr|Q0CWK4|Q0CWK4_ASPTN        LLQERRADLFYLTLSDYIQHKHAPRSTESDEFMRKVDGYLGEYVKLGAVV
tr|C1DSK8|C1DSK8_AZOVD        LLQDRRPDLMYLSLTDFVQHKWAPEEAQARHFYQRLDDAFGRLAQEDIVL
tr|B8MDJ2|B8MDJ2_TALSN        LLEEGKSDFLYLTLSDYIQHKYPPGPDEADEFMGAIDARLQKLASLAPIV
tr|Q01YC7|Q01YC7_SOLUE        ILEREKPDLMYLSLSDYIQHKYPPGSKEANAYYVGIDDALGRLLALGATV
                              :         .:*::   *  :*:.   *    :  :     *   .

tr|Q51782|Q51782_PSEFL        AITADHGMNAKTDAIGR-PNILFLQDLLDAQYG----AQRTRVLLPITDP
tr|Q50HR5|Q50HR5_9PSED        AITADHGMNAKTDAIGR-PNILFLQDLLDAQYG----ARRTRVLLPITDP
tr|Q50HR6|Q50HR6_PSEPU        AITADHGMNAKTDAIGR-PNILFLQDLLDAQYG----AQRTRVLLPITDP
tr|B1GB52|B1GB52_9BURK        ALTADHGMNAKTDAIGR-PNIVFLQDRLDAQYG----ARTTRVLLPITDP
tr|B3R8G0|B3R8G0_CUPTR        GVTADHGMNAKTDSLGK-ANILFLQQVLDERFG----TDTTRVLLPITDP
tr|Q0K2Z6|Q0K2Z6_RALEH        GVTADHGMNAKTDSLGK-ANILFLQQVLDERFG----ADATRVLLPITDP
tr|Q122G7|Q122G7_POLSJ        VLTADHGMNAKVALDG-TPDVIYLQDWFDAWLG----TAKARVILPITDP
tr|A1WGW5|A1WGW5_VEREI        ALTADHGMNAKHGKD-GAPNVIYLQDMLDHWFAAG----TTRVVLPITDP
tr|Q46NR5|Q46NR5_RALEJ        VLTADHGMNDKHG-ATGEPNVIYLQDQLDSWYG----EGAARVILPITDP
tr|B1FA18|B1FA18_9BURK        AITADHGMNAKHDGETGEPNVIYLQELFDAWLG----HDAARVILPITDP
tr|Q13P91|Q13P91_BURXL        GLTADHGMNAKHDPQTGEPNVIYLQDVLDEWLG----TGRARVILPITDP
tr|B9BDA8|B9BDA8_9BURK        AITADHGMNAKHDGETGEPNVIYLQELFDEWLG----HDAARVILPITDP
tr|Q39BS9|Q39BS9_BURS3        AITADHGMNAKHDDETGEPNVIYLQELFDEWLG----HDAARVILPITDP
tr|B1K0L1|B1K0L1_BURCC        AITADHGMNAKHDDATGEPNVIYLQELFDEWLG----HDAARVILPITDP
tr|B1GBC6|B1GBC6_9BURK        GLTADHGMNAKHDPQTGEPNVIYLQDVLDEWLG----ARRARVILPITDP
tr|Q0JZU4|Q0JZU4_RALEH        ALTADHGMNAKHDDATKAPNVIYLQDHLDAWLGRGVEDGGARVILPITDP
tr|B2JLS9|B2JLS9_BURP8        GLTADHGMNAKHDPQTGEPNVIYLQDVMDEWLG----ARAARVILPITDP
tr|B2TDW9|B2TDW9_BURPP        GLTADHGMNAKHDPQTGEPNVIYLQDVLDDWLG----HGRARVILPITDP
tr|A9AC80|A9AC80_BURM1        AITADHGMNAKHDGETGEPNVIYLQELFDEWLG----HDAARVILPITDP
tr|B3RBG9|B3RBG9_CUPTR        ALTADHGMNAKHDEATKAPNVIYLQDQLDAWLGRGVEAGGARVILPITDP
tr|Q2T3L1|Q2T3L1_BURTA        GVTADHGMNAKHDPRTGEP-NVYLQDALDAWLG----PRRARVILPITDP
tr|Q63NF1|Q63NF1_BURPS        GVTADHGMNAKHDPRTGEPNVVYLQDALDAWLG----PRLARVILPITDP
tr|Q62CM0|Q62CM0_BURMA        GVTADHGMNAKHDPRTGEPNVVYLQDALDAWLG----PRLARVILPITDP
tr|A4JJS8|A4JJS8_BURVG        GLTADHGMNAKHDPATGRPNVVYLQDAFDRWFG----AQSARVILPITDP
tr|B9BUA1|B9BUA1_9BURK        GVTADHGMNAKHDPATGRPNVVYLQDALDGWFG----ARAARVILPITDP
tr|Q92UV8|Q92UV8_RHIME        VVTADHGMKPKHKADGS-PDVIYVQDLLDEWLG----KDAARVILPITDP
tr|A6UJ29|A6UJ29_SINMW        VVTADHGMKPKHKADGS-PDVIYVQDLLDEWLG----EEAARVILPITDP
tr|C8SFV8|C8SFV8_9RHIZ        VVTADHGMKPKHKTDGS-PDVVYVQDLLDEWLG----KDAARVILPITDP
tr|B6B654|B6B654_9RHOB        VVTADHGMKPKHHADGS-PNVVYLQDYLDESLG----AGKARVILPITDP
tr|Q7WNM7|Q7WNM7_BORBR        ACIADHGMSHKTDAQGR-PNAIFLQDLLEARFG----AGSARIICPITDP
tr|C7D6N1|C7D6N1_9RHOB        VVTADHGMKPKHDASGD-PQVIYVQDLLDEWLG----EAAARVILPITDP
tr|A3SHW2|A3SHW2_9RHOB        VVTADHGMKPKHHSDGS-PNVIYVQSLLDEWLG----AGEARVILPITDP
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tr|B1PM60|B1PM60_9PROT      VVTADHGMKPKHDANGD-PAVIYVQDLLDDWLG----EAAARVILPITDP
tr|D0RQ73|D0RQ73_9RICK      CFTADHGMKGKTNEDGS-LNLIYLQDELDKKFG----KDFCNVICTITDP
tr|B1A0M6|B1A0M6_9BACT      VVTADHGMKPKHDANGD-PAVIYVQDLLDEWLG----EAAARVILPITDP
tr|B6JE67|B6JE67_OLICO      GIVADHGMTDKCTPDGE-PQVVFLEKMLNEQFG----PGSVRVICPITDP
tr|B9K3S9|B9K3S9_AGRVS      GIVADHGMNDLSRADGT-PNVVYLGDILDEEFG----EGSTRVICPITDP
tr|Q215P4|Q215P4_RHOPB      ALTADHGMADKTDADGR-PNVVYLEDALNDKFG----AGTARVICPIADP
tr|A9G6L6|A9G6L6_SORC5      GITADHGMNDKTAQDGS-PNVRYLDDALREAGLSG-----FRVLLPITDP
tr|C5AM01|C5AM01_BURGB      AVTADHGTGAKHDPRTGAPKVVYLQDALDAWLDFP----RTRVVLPIADP
tr|B3QHC0|B3QHC0_RHOPT      ALTADHGMADKSDADGR-PNVVYLEDALNQTFG----AGVARVICPIADP
tr|Q0CWK4|Q0CWK4_ASPTN      AVTGDHGMSDKSDANGK-PNVLFLEDFLNHKWP----QSGARVICPIADP
tr|C1DSK8|C1DSK8_AZOVD      GLTADHGMSDKSDAAGE-PNVIWLQDILDAEFG----AGETTVICPITDA
tr|B8MDJ2|B8MDJ2_TALSN      GVTGDHGMSRKSNADGE-PNVLFLEDKLHEKFG----ARSARVICPITDP
tr|Q01YC7|Q01YC7_SOLUE      ALTADHGMNDKSNADGS-PNIVFLQDLLDMQFG----SGTAKVILPITDP
                              .***                   ::  .  :              ::  .*:*.

tr|Q51782|Q51782_PSEFL      YVVHHGALGSYATVYLRDAVPQ--RDAIDFLAGIAGVEAVLTRSQACQRF
tr|Q50HR5|Q50HR5_9PSED      YVVHHGALGSYATVYLRDAVPQ--RDAIDFLAGIAGVEAVLTRSQACQRF
tr|Q50HR6|Q50HR6_PSEPU      YVVHHGALGSYATVYLRDAVPQ--RDAIDFLAGIAGVEAVLTRSQACQRF
tr|B1GB52|B1GB52_9BURK      YVVHHGALGSYATVYLRDHDEQKQRDVAAFLAAINGVEAVLTRAQASERF
tr|B3R8G0|B3R8G0_CUPTR      YVAHHGALGSYATVYLPAGTDQ--RAVHEAIAALPGIELVLDKRAASERF
tr|Q0K2Z6|Q0K2Z6_RALEH      YVAHHGALGSYATVYLPAGTNQ--QAVHEAIAALPGIELVLDKRAASERF
tr|Q122G7|Q122G7_POLSJ      YVMHHGALGSYATVYLPDGVD--VAAACERLAQLKGMEVVLTREQAARRF
tr|A1WGW5|A1WGW5_VEREI      YVVHHGALGSYATIHLPADLD--VRELIARLSALAGVEVVLDRAAAAARF
tr|Q46NR5|Q46NR5_RALEJ      YVVHHGALGSFATIYTPDAES--AARWISRIADIDGMESVLTRQEAAERF
tr|B1FA18|B1FA18_9BURK      YVVHHGALGSFATVYVPDSGE--IDALRARLAAVDGIEVVLTGAEGCARF
tr|Q13P91|Q13P91_BURXL      YVVHHGALGSFATIYLPRDISV--AQVIERIGGLRGIETVLDNSAACERF
tr|B9BDA8|B9BDA8_9BURK      YVVHHGALGSFATVYVPASAD--IDALRARLAAVDGIELVLSGAEGCARF
tr|Q39BS9|Q39BS9_BURS3      YVVHHGALGSFATVYVPATAD--AEALRARLAAVDGIDVVLTGAEGCARF
tr|B1K0L1|B1K0L1_BURCC      YVVHHGALGSFATVYVPGDAD--TDALRARLAAVDGIELVLTGAEGCARF
tr|B1GBC6|B1GBC6_9BURK      YVVHHGALGSFATIYLPRDVSA--AQVIERIRGLAGVELALDNRAACERF
tr|Q0JZU4|Q0JZU4_RALEH      YVVHHGALGSYATIYLPDDAD--PAAIKARLSDLQGVESVLTNAEACARF
tr|B2JLS9|B2JLS9_BURP8      YVVHHGALGSFATIYLLADVNA--RQVIERLGGLKDIEVVLDNKAACKRF
tr|B2TDW9|B2TDW9_BURPP      YVVHHGALGSFATIYLPRDVSV--AQVIERIGGLQGIDTVLDNAAACERF
tr|A9AC80|A9AC80_BURM1      YVVHHGALGSFATVYVPASAD--VDALRARLGAVDGIELVLSGAEGCARF
tr|B3RBG9|B3RBG9_CUPTR      YVVHHGALGSYATIYLPDDAD--AAAIQARLSDLEGVESVLTNADACARF
tr|Q2T3L1|Q2T3L1_BURTA      YVVHHGALGSFATIYVEEGVDA--VAIGRLSAIDGIELALDNATAAERF
tr|Q63NF1|Q63NF1_BURPS      YVVHHGALGSFATIYVEQGVDA--GTVIGRLREFDGVELALDNATAAERF
tr|Q62CM0|Q62CM0_BURMA      YVVHHGALGSFATIYVEQGVDA--GTVIGRLREFDGVELALDNATAAERF
tr|A4JJS8|A4JJS8_BURVG      YVVHHGALGSFATVYLAPGVDR--TDAMWRIGDLDGIELVLDNAEAAARF
tr|B9BUA1|B9BUA1_9BURK      YVVHHGALGSFATVYLAPAINR--TDAMWRVGGLDGVECVLDNAEAVARF
tr|Q92UV8|Q92UV8_RHIME      YVVHHGALGSFATAYLPDGCDR--SEIMARLKAIQGVDVVLGREEACRRF
tr|A6UJ29|A6UJ29_SINMW      YVVHHGALGSFATAYLPGQCDR--GEIIDRLKALDGIDVVLDREEACRRF
tr|C8SFV8|C8SFV8_9RHIZ      YVVHHGALGSFATAYLPDGADQ--AGIMARLAKVDGIMLVVDSPTACKRF
tr|B6B654|B6B654_9RHOB      YVVHHGALGSFATVYLPDGVIM--SEIIPQIEALDGITHVFDQDEAVRRF
tr|Q7WNM7|Q7WNM7_BORBR      FVRHHGALGSFVRGYARNP-AD-IEAMMQAAAAIDGVQEVLSREQAAQRL
tr|C7D6N1|C7D6N1_9RHOB      YVVHHGALGGFGTAYLPDGANR--ADIIARLASREEILEVLTKEEAVERF
tr|A3SHW2|A3SHW2_9RHOB      YVVHHGALGSFATAYLPEGCDL--GAIIERLAAREELILVVDKAEAMRRF
tr|B1PM60|B1PM60_9PROT      YVVHHGALGGFGTAYLPEGTDR--ADIIARLAAREELLEVVTKEEAVARF
tr|D0RQ73|D0RQ73_9RICK      YVVHHGSFGSFVTIYLEDKNKI--SEVVKYIKTIKGIDIVLSNDESVKKF
tr|B1A0M6|B1A0M6_9BACT      YVVHHGALGGFGTAYLPEGTDR--GDIIARLAAREELLEVVTKEEAVRF
tr|B6JE67|B6JE67_OLICO      FVKHHGALGSFVRVYATGK-TS-PETLMDAAARIPGVALVLDGKSASERY
tr|B9K3S9|B9K3S9_AGRVS      FVKHHGALGGFVRVHLMKDGLD-RNEILKAIRTLPGVEVALTGEQAAAQF
tr|Q215P4|Q215P4_RHOPB      FVRHHGALGGFVRVHLLKP-CD-IKAMMTYARSLPGVELVLDRATVCERY
tr|A9G6L6|A9G6L6_SORC5      YVVHHGALGSYATVYLGAPDDS--ARAAQVLGRLPGVELVLAREEAARRF
tr|C5AM01|C5AM01_BURGB      HVAHHGALGSFATIHLPDGLDA--SEVVMLLRRLDGIALALARDEAAACF
tr|B3QHC0|B3QHC0_RHOPT      FVRHHGALGGFVRVHLLKP-CD-IAAMMTFVRSLPGVELVLDRATVCERY
tr|Q0CWK4|Q0CWK4_ASPTN      FVKHHGALGGFVHLKDC-SD-VEDMVAACRELPEVELAMLGEEAAAMF
tr|C1DSK8|C1DSK8_AZOVD      FVAHHGALGGFVRVWSRGNVSV--AAIIERIAALEGVDLSLDKATACRLF
tr|B8MDJ2|B8MDJ2_TALSN      FVRHHGALGSFVRVYLKDL-TT-LGSTLAYCKSLPEIEVAITGKEAAEIY
tr|Q01YC7|Q01YC7_SOLUE      YVKHHGALGSYATIFFQQPVSA--PAVMSLLNRQPGVELVMDRAAAAKLF
                              .* ***::*.:                           :      .

tr|Q51782|Q51782_PSEFL      ELPEDRIGDLVVLGERLTVLGSAADKHDLSGLTVP-LRSHGGVSEQKVPL
tr|Q50HR5|Q50HR5_9PSED      ELPEDRIGDLVVLGERLTVLGSAADKHDLSGLTVP-LRSHGGVSEQKVPL
tr|Q50HR6|Q50HR6_PSEPU      ELPEDRIGDLVVLGERLTVLGSAADKHDLSGLTVP-LRSHGGVSEQKVPL
tr|B1GB52|B1GB52_9BURK      ELPSDRIGELVVLGERLTVLGSAADKHDLSGLTVP-LRSHGGMSEQKVPL
tr|B3R8G0|B3R8G0_CUPTR      ELPPDRIGDLVVSERLTVLGTTPARHDLSGLDAP-LRSHGGLSEQKVPL
tr|Q0K2Z6|Q0K2Z6_RALEH      ELPPDRIGDLVVSERLTVLGTTPARHDLSGLDAP-LRSHGGLSEQKVPL
tr|Q122G7|Q122G7_POLSJ      ELPADRIGDLVAVSERFTVIGTSASRHDLSALEVP-LRSHGGLSEQRVPL
tr|A1WGW5|A1WGW5_VEREI      ELPPDRIGDIVIVSQRDTVLGTAAARHDLSGLDAP-LRSHGGLSEQQVPL
tr|Q46NR5|Q46NR5_RALEJ      GLPPDRIGDVVVSRQNVVIGTSKSRHDLSGLDAP-LRSHGGVSQVVPL
tr|B1FA18|B1FA18_9BURK      ELPPDRMGDLIVISKQDVVLGTRRIKHDLSGLDVP-LRSHGGISEQIVPL
tr|Q13P91|Q13P91_BURXL      ELPNDRVGDIVVVSTKHVALGTRRNEHDLSGLTVP-LRSHGGVSEQEVPL
tr|B9BDA8|B9BDA8_9BURK      ELPPDRMGDLIVISKQDVVLGTRRIKHDLSGLDVP-LRSHGGLSEQIVPL
tr|Q39BS9|Q39BS9_BURS3      ELPPARMGDLIVISKQDVVLGTRRIKHDLSGLDVP-LRSHGGISEQIVPL
tr|B1K0L1|B1K0L1_BURCC      ELPPARMGDLIVISKQDVVLGTRRIKHDLSGLDVP-LRSHGGISEQIVPL
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tr|B1GBC6|B1GBC6_9BURK    ELPKDRVGDIVVIGTKHVVLGTRCDEHDLSGLTVP-LRSHGGLSEQEVPL
tr|Q0JZU4|Q0JZU4_RALEH    ELPPDRVGDLVVTSDKHVVLGTSHSRHDLSGLDAP-LRSHGGVSEQTVPL
tr|B2JLS9|B2JLS9_BURP8    ELPNDRVGDIVVVSRKDTALGTRREEHDLSGLTVP-LRSHGGIAEQVVPL
tr|B2TDW9|B2TDW9_BURPP    ELPNDRVGDIVVVSTKHVVLGTRRAEHDLSGLTVP-LRSHGGISEQEVPL
tr|A9AC80|A9AC80_BURM1    ELPPDRMGDLIVISKQDVVLGTRRIKHDLSGLDVP-LRSHGGLSEQIVPL
tr|B3RBG9|B3RBG9_CUPTR    ELPSDRVGDLVVTSDKHVVLGTSQSRHDLSGLDAP-LRSHGGVSEQTVPL
tr|Q2T3L1|Q2T3L1_BURTA    ELPADRIGDVVAVGRRDVALGTRESEHDLSGLTVP-LRSHGGLSEQRVPL
tr|Q63NF1|Q63NF1_BURPS    ELPADRIGDVVVVGRRDVVLGTRAREHDLSGLTVP-LRSHGGLSEQRVPL
tr|Q62CM0|Q62CM0_BURMA    ELPADRIGDVVVVGRRDVVLGTRAREHDLSGLTVP-LRSHGGLSEQRVPL
tr|A4JJS8|A4JJS8_BURVG    ELPADRIGDLVVVARRDTAVGTREREHDLSGLTVP-LRSHGGVSEQEVPL
tr|B9BUA1|B9BUA1_9BURK    SLPADRIGDLVVIARRDTTLGTRERDHDLSGLTVP-LRSHGGVSEQEVPL
tr|Q92UV8|Q92UV8_RHIME    ELPEDRIGDIVLVSSENKTLGTSEHRHDLAALDEP-LRSHGGLTEQEVPF
tr|A6UJ29|A6UJ29_SINMW    ELPEDRIGDIVLVSSENKTLGTSEHRHDLAALDEP-LRSHGGLTEQEVPF
tr|C8SFV8|C8SFV8_9RHIZ    ELPADRIGDIVLVSTENKTIGTSEHRHDLAALNEP-LRSHGGLTEQEVPF
tr|B6B654|B6B654_9RHOB    ELPKDRIGHLVVISGENVTIGTSAHRHDLAALKEP-LRSHGGLTEQEVPF
tr|Q7WNM7|Q7WNM7_BORBR    GLPLDREADFVVISHESYVLGSRADEHDLSTVGDHPLRSHGGYSEQPVPF
tr|C7D6N1|C7D6N1_9RHOB    ELPADRIGDIVMISTENLTIGTSEHLHDLAALNEP-LRSHGGLTEQEVPF
tr|A3SHW2|A3SHW2_9RHOB    DLPGDRIGDIVMISGENICIGTSEERHDLAALKEP-LRSHGGLTEQEVPF
tr|B1PM60|B1PM60_9PROT    ELPADRIGDIVMISTENMTIGTSESRHDLAALNEP-LRSHGGLTEQEVPF
tr|D0RQ73|D0RQ73_9RICK    NQPKDRIGDIVVTSDENFAIGKKESDHDLTKLKEP-LRTHGGMGESDIPI
tr|B1A0M6|B1A0M6_9BACT    ELPADRIGDIVMISTENMTIGTSESRHDLAALNEP-LRSHGGLTEQVVPF
tr|B6JE67|B6JE67_OLICO    EMPIEREGDFIAIGDTYTAIGSRPDEHDLSGLNGHKLRSHGGLSEQPVPF
tr|B9K3S9|B9K3S9_AGRVS    EFPLDREADIVVISCRGVALGARNIDHDISQLAGERLRSHGGSLAEQQVPF
tr|Q215P4|Q215P4_RHOPB    QLPPDREGDFAVFSDRGTVVGARREDHDLSALGSHSLRSHGGLGEQRVPF
tr|A9G6L6|A9G6L6_SORC5    ALPPDRIGDLVILGDRSTVLGKSAAYHDLSAVQRG-LRSHGGLHEAEVPI
tr|C5AM01|C5AM01_BURGB    ELPVDRIGDVVVVARDDTVLGRREREHDLSALTAP-LRSAWRVRRAGGAA
tr|B3QHC0|B3QHC0_RHOPT    QLPPDREGDFAVFTDRGTAVGARREDHDLSALGDHRLRSHGGLGEQRVPF
tr|Q0CWK4|Q0CWK4_ASPTN    DMPADREGDLVVISKEQFAIGSRADEHDLTQLQGHRLRTHGGLSERAIPL
tr|C1DSK8|C1DSK8_AZOVD    DLPEDREADVAVIARKDVCIGSSARLHDLSGLKGHRLRTHGGLTETRVPF
tr|B8MDJ2|B8MDJ2_TALSN    NMPLDREGDIVVVSKPEAVIGTRKSEHDLSKVRDYTLRSHGGLSEQDIPI
tr|Q01YC7|Q01YC7_SOLUE    DLPADR---------------------------------------IGT
                               *   *


tr|Q51782|Q51782_PSEFL    IFNRKLVGLD-----------------SPGR-LRNFDIIDLALNHLA--
tr|Q50HR5|Q50HR5_9PSED    IFNRKLVGLD-----------------SFDR-LRNFDIIDLALNHLA--
tr|Q50HR6|Q50HR6_PSEPU    IFNRKLVGLD-----------------SFDR-LRNFDIIDLALNHLA--
tr|B1GB52|B1GB52_9BURK    IFNRKLSGND-----------------GTRR-LRNFDVIDLALNHLV--
tr|B3R8G0|B3R8G0_CUPTR    LFNRKVSVPA-----------------G-QR-LRNFDILRLALNHAD--
tr|Q0K2Z6|Q0K2Z6_RALEH    LFNRKVTAPA-----------------G-QR-LRNFDILRLALNHAD--
tr|Q122G7|Q122G7_POLSJ    IVNRKLPGLD-----------------RAR-RFRNFDAFELALNYAQG-
tr|A1WGW5|A1WGW5_VEREI    ILNRRVEG-V-----------------ASERRLRNFDAFDLALNHAVAL
tr|Q46NR5|Q46NR5_RALEJ    LCNRSMVGLQ-----------------P-DRRLRNFDALDLALNHAA--
tr|B1FA18|B1FA18_9BURK    IFSKPVATAV-----------------TGRARLRNFDIIDIALNHLQ--
tr|Q13P91|Q13P91_BURXL    LFNRRVEALPSS-------------GGNGGRRLRNFDIFDIALNRVSAS
tr|B9BDA8|B9BDA8_9BURK    IFNQPVSADV-----------------AGRARLRNFDIIDIALNHLR--
tr|Q39BS9|Q39BS9_BURS3    IFSKPVAGDV-----------------SGRARLRNFDIIDIALNHLQ--
tr|B1K0L1|B1K0L1_BURCC    IFSKPVATDV-----------------TGRARLRNFDIIDIALNHLQ--
tr|B1GBC6|B1GBC6_9BURK    LFNRRVEGLPTA--------------D--SGRRLRNFDIFDVALNRVSAS
tr|Q0JZU4|Q0JZU4_RALEH    VFNR-ATAGI-----------------PGKALLRNFDIFDVALNHLH--
tr|B2JLS9|B2JLS9_BURP8    IFNRRIDEAR-----------------VAGKRLRNFDVFEIALNHVATS
tr|B2TDW9|B2TDW9_BURPP    LFNRRVEALPSS-------------GGESGKRLRNFDIFDIALNRVSSS
tr|A9AC80|A9AC80_BURM1    IFSQPVSADV-----------------AGRARLRNFDIIDIALNHLR--
tr|B3RBG9|B3RBG9_CUPTR    VFNR-ATGGI-----------------PGKAVLRNFDIFDVALNHLH--
tr|Q2T3L1|Q2T3L1_BURTA    LFNRRIEGV------------------EPGRRLRNFDLFDLALNRAVR-
tr|Q63NF1|Q63NF1_BURPS    LFNRRIEHV------------------EPGRRLRNFDLFDLALNRTVQ-
tr|Q62CM0|Q62CM0_BURMA    LFNRRIEHV------------------EPGRRLRNFDLFDLALNRTVQ-
tr|A4JJS8|A4JJS8_BURVG    IFNRRIEPR------------------DPARRPRNFDVFDFVLNRIAS-
tr|B9BUA1|B9BUA1_9BURK    LFNRRIVRR------------------DVERRPRNFDVFDFVLNRVAR-
tr|Q92UV8|Q92UV8_RHIME    IVNRVLPELPNA-----------------PRLRNFDAFFYAVTAAAEA
tr|A6UJ29|A6UJ29_SINMW    IVNRVLPDLPGA-----------------PCLRNFDAFFYAVAAAALI
tr|C8SFV8|C8SFV8_9RHIZ    IVNRVLPDLPDE-----------------PTLRNFDAFYYATMAAALA
tr|B6B654|B6B654_9RHOB    IVNRVLDLPEQP-----------------EALRNFDAFFYACTAAAL-
tr|Q7WNM7|Q7WNM7_BORBR    FLSQPLSPAYRER--------------AAQGGLRNFDIFDFALNGVQTQ
tr|C7D6N1|C7D6N1_9RHOB    IVNRIIDLPSKP-----------------VLRNFDAFFYAAAAAL-
tr|A3SHW2|A3SHW2_9RHOB    IVNRVLDLPDQP-----------------EQLRNFDAFFYATMAAAQ-
tr|B1PM60|B1PM60_9PROT    IVNRVIDLPSKP-----------------VLRNFDAFFYATTAAAL-
tr|D0RQ73|D0RQ73_9RICK    FLSKKIDQSYKSK----------------GVLRNFDIFDLALNYG---
tr|B1A0M6|B1A0M6_9BACT    IVNRVIDLPSKP-----------------VLRNFDALFYAITAAAL-
tr|B6JE67|B6JE67_OLICO    MVSKPLNKEYQAI--------------VAARRLRNFDIFDFALNGPA--
tr|B9K3S9|B9K3S9_AGRVS    IISHPLN-ETYAK--------------RSIANLRNFDVFDYALNGTL--
tr|Q215P4|Q215P4_RHOPB    VVSRPLTRDYRER--------------AAAGVLRNYDIFDFALNGVE--
tr|A9G6L6|A9G6L6_SORC5    LASHPLRPGERAWLLGAEAAEADADAARGRPSALSNADVFDLVLNRLSTA
tr|C5AM01|C5AM01_BURGB    AVQPARPGDGRCGPA--LAQFRRIRSRAEPSGARRRFRVRAHAAHAGAGD
tr|B3QHC0|B3QHC0_RHOPT    VLSRPLKRDYRER--------------AATGVLRNYDIFDFVLNGVD--
tr|Q0CWK4|Q0CWK4_ASPTN    LRSTPVQMDDVGQ----------------RQWRNFDVFDLALNY----
tr|C1DSK8|C1DSK8_AZOVD    ILNRPLNSEYRQQ--------------VAHSEIKSYRIFEFAINGTL--
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tr|B8MDJ2|B8MDJ2_TALSN      IMNKRFSNEARAA---------------SAARTWRNFDVFDLTLNWSRW-
tr|Q01YC7|Q01YC7_SOLUE      WLSSPIEALSWVR--------------VGLLSI----------------
                                .

tr|Q51782|Q51782_PSEFL      --------------------------------------------------
tr|Q50HR5|Q50HR5_9PSED      --------------------------------------------------
tr|Q50HR6|Q50HR6_PSEPU      --------------------------------------------------
tr|B1GB52|B1GB52_9BURK      --------------------------------------------------
tr|B3R8G0|B3R8G0_CUPTR      --------------------------------------------------
tr|Q0K2Z6|Q0K2Z6_RALEH      --------------------------------------------------
tr|Q122G7|Q122G7_POLSJ      --------------------------------------------------
tr|A1WGW5|A1WGW5_VEREI      RAKSAA--------------------------------------------
tr|Q46NR5|Q46NR5_RALEJ      --------------------------------------------------
tr|B1FA18|B1FA18_9BURK      --------------------------------------------------
tr|Q13P91|Q13P91_BURXL      --------------------------------------------------
tr|B9BDA8|B9BDA8_9BURK      --------------------------------------------------
tr|Q39BS9|Q39BS9_BURS3      --------------------------------------------------
tr|B1K0L1|B1K0L1_BURCC      --------------------------------------------------
tr|B1GBC6|B1GBC6_9BURK      --------------------------------------------------
tr|Q0JZU4|Q0JZU4_RALEH      --------------------------------------------------
tr|B2JLS9|B2JLS9_BURP8      --------------------------------------------------
tr|B2TDW9|B2TDW9_BURPP      --------------------------------------------------
tr|A9AC80|A9AC80_BURM1      --------------------------------------------------
tr|B3RBG9|B3RBG9_CUPTR      --------------------------------------------------
tr|Q2T3L1|Q2T3L1_BURTA      --------------------------------------------------
tr|Q63NF1|Q63NF1_BURPS      --------------------------------------------------
tr|Q62CM0|Q62CM0_BURMA      --------------------------------------------------
tr|A4JJS8|A4JJS8_BURVG      --------------------------------------------------
tr|B9BUA1|B9BUA1_9BURK      --------------------------------------------------
tr|Q92UV8|Q92UV8_RHIME      GAEGGL--------------------------------------------
tr|A6UJ29|A6UJ29_SINMW      SAEDAI--------------------------------------------
tr|C8SFV8|C8SFV8_9RHIZ      --------------------------------------------------
tr|B6B654|B6B654_9RHOB      --------------------------------------------------
tr|Q7WNM7|Q7WNM7_BORBR      AAADA---------------------------------------------
tr|C7D6N1|C7D6N1_9RHOB      --------------------------------------------------
tr|A3SHW2|A3SHW2_9RHOB      --------------------------------------------------
tr|B1PM60|B1PM60_9PROT      --------------------------------------------------
tr|D0RQ73|D0RQ73_9RICK      --------------------------------------------------
tr|B1A0M6|B1A0M6_9BACT      --------------------------------------------------
tr|B6JE67|B6JE67_OLICO      --------------------------------------------------
tr|B9K3S9|
```