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 A PVI H L R G D A N K L K CLLRYRLLRSSVP HLVVNASSTWHWTC G I AI LRGPCNTL KCCRYRWKRNHRHLERAISTTWYWTGE P V I L V K G D P N T L K C F R N R S K T K Y R D L I K A V S T T W S WV S T PLILLKGHPNTLKCWRWRCKNKYSHLTVACTTVFHWVGD $C L L I I K K G T N G V K C L R Y R D K T H H Q S L E K Y V S T T W Q W V P A$
 PI I L FK GAANTLLKCYRYRER QRLLKGFYKWFSTTWSWVGS PVI LFRGPPNTLKCYRYREKERLKGSYDRFSTTWSWVGS

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 $P L I C L K G P A N T L K C W R Y R C K L K Y R G M F Y R \| S T G F S W V A E$
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| UniRef90-D7P 176 | DSS |
| UniRef90-Q2VJC4 | SSPTDANSAFVTLWHDSVEQRAKFLATVTLPKDIVAVPGY |
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| UniRef90-A9CRO2 | TSTLKSG HRMLVAFSNFDQRTNFLANVHLPKGVTA VT |
| UniRef90-Q8QQB9 | KGGQRVGNARLMVTFSSDDQRRLLLATVPPPRGVTATSFT |
| UniRef90-W8E8L3 | KGPKRIGDGKMVIMFDDEAAREWFLKTVS |
| UniRef90-G8EGT5 | GTERLGQQKMLI AFHTSTERSLFLKSVVLPKGVKYT |
| UniRef90-P2215 | NGD KTAFVTLWYKSQEQRAEFLTRVHLPKGVKALPGY |
| UniRef90-B9UP | RGSAKTG ILTLTYTSETQRNEFLDTVKIPNSV |
| UniRef90 I3VR | RGGGKVGRSRITVSFTSNEQLSQFRNLAPLPTDVECCVGL |
| UniRef9-P03123 | QGSERPGDATVIVTFKDQSQRSMFLQQVPLPPGMSAHGVT |
| UniRet90-H6UYR5 | EDTGNKGSARLVVGFDSTQQRTQFMEHVPIPRGVSAVYG |
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| UniRef90-Q9WHG3 | KETTRTG LLTLAYANETQRQKFLDVVK】PNTVNVSLGY |
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| UniRef90-EOYDP8 | DS |
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| UniRef90-E7BQ82 | DNN SRMLFAFKDTQ |
|  |  |
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| UniRef90-R9RX83 | TGTEKCVRSRMIVTFSSTEQRNLFCTKVPLPSSVTA |
| UniRet90-Q8BD | TCTVKSG HRMLVAFVNSEQRTLFLATVKIPKGVT |
|  | CGNERHGRATIMLTFSGPQSRADFLKHVSLPLGMT |
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| UniRef90 K7C | QGANRLGPARML |
| UniRet90-E7B1 |  |
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| UniRef90-F2VIR4 | DGLTRTCSHRLCVSFCCKDQRNCFLQCVPL |
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| UniRef90-A6X | EGSDRQGNGTILVTFDSTSQRKLILLDHVSIPGELT |
| UniRet90-H9LC | AEKAIVTVTFKDEQQRQQFLSVVKIPNSVH |
| UniRef90-P36793 | SRTEK NALTLTYSSVQQRSDFLALVKIPKTUKHSLGM |
|  | TGAGTEDQ RLLA |
| UniRef90-P06790 | DCNVRT SGRMLISFDTSMQRQRFMQTVTFPKGS |
| UniF | NSTNDCNMHRLLISFKNQNQRSMFLKFVNLPKGC |
| UniRef90-0078 |  |
| UniRei90-O37387 | NNSPKT SRV |
| UniRef90-D5FL28 | EQHE ARVTVAFNNTAQRQQFLQTVPFPPNISYSWGR |
| UniRef90-W8EC70 | EGTDRVGRARVIFLFTDKGQRERFMSRVKFP |
| UniRef90-\13P6M7 | E DVDLA GRVLVAFANSNQRSFIDTV |
|  | CISNHKMLIAFQSREQRELI RATV |
| UniRef90 B7TQ | DGNCRQGRHRLQI LFSSSQQLDQFLGKVKVPKGVEV |
| UniRef90-I6MRF18 |  |
| UniRef90-S6G386 | TDCP TNTSRMLIAFHSLNERSRFLQLVT |
| UniRef90-J7JMM2 | EG DKVGRQRLMI GFRDEGQRSFFLKNVKIPSTFDLS F |
| UniRef90-D7P162 | GCTQ SRMLLAFESESQREHFLKLVKL |
| UniRef90 H2 | TSDD NGRMLLAFESVSDRELFLRSVVT:PKGSSMSGG |
| UniRef90-K4MKU6 | K ADSSYQSKMLVAFSSVVQREAFVNTINLPKG ATLVY |
| UniRef90 B4XYE9 | SGS APNHRICVSFSSEEQRNVFLNLVPLP |
| iRef90-P36794 |  |
| UniRef90_S4TGZ5 |  |
| Q80944 | DVPE SSRHKLLVVFN |
|  | VQGEKS ${ }^{\text {VANRMLVVFDTRQDRELFLHRVTFPPGVTW CY }}$ |
| UniRef90-F8QPQ3 | ADTDK GTFVTVWHSDREQQGRFLATVSVPKDI E |
| UniRef90 B4XYE2 | GGVERTMKRCAC |
| UniRet90- ${ }^{\text {a705H7 }}$ |  |
| UniRef90-K4MN79 | D ${ }^{\text {d }}$ S RLTVAFANKDQRSA |
| UniRef90_U6BN97 | DVSDKSQRGRIIVTFKTDNQRECFMRYVRLPKNSNAS F |
| UniRef90 A4GV60 | SCNKKAGPALTMMYDSEHQRTKFLDDS ${ }_{\text {CGS }}$ |
| UniRef90-13P6N4 | D VKLADSRVLVAFADNTQR |
| UniRef90-H2BQ900 | NNTNSNKGRMLVAFEDSKQREQF |
| UniRef90_V5W3P8 | HVNDCDKNHKMLLAFNSANQRQ |
| UniRef90 ${ }^{\text {ch }}$ | DAVGHEG RVLIAFLSKESRD |
| 硡 | D |
| 3P |  |


| UniRef90_D3VWC9 | M S M |
| :---: | :---: |
| UniRef90_J9QWH0 |  |
| UniRef90-P36788 | M S L |
| UniRef90-D7P176 | GSLN |
| UniRef90_Q2VJC4 | M T M |
| UniRef90-Q9WNM7 | M S M C F |
| UniRef90-Q81021 | MS L |
| UniRef90_16MRD7 | $\square \mathrm{S}$ |
| UniRef90-A9CR02 | GS L D |
| UniRef90-Q8QQB9 |  |
| UniRef90-W8E8L3 |  |
| UniRef90-G8EGT5 | G Q L D |
| UniRef90-P22155 | M S |
| UniRef90-B9UPE2 | M S |
| UniRef90-I3VR47 | S S L |
| UniRef90-P03123 | M TVD F |
| UniRef90-H6UYR5 |  |
| UniRef90-C3PU91 | M T |
| UniRef90-F2VIS2 | M P L |
| UniRef90-I1SV09 | M S I |
| UniRef90_G5ELP2 | G S L D |
| UniRef90-D3VWB9 | M S M C |
| UniRef90-C8YJK1 |  |
| UniRef90-M4JBT2 | G S L D |
| UniRef90-P50773 | M T L |
| UniRef90-Q9WHG3 | M T L |
| UniRef90_13P6P8 | G HLD |
| UniRef90-E0YDP8 |  |
| UniRef90-Q80930 | G H L D |
| UniRef90-H2BQE5 | GSID |
| UniRef90-T1YD17 | G S L D |
| UniRef90_E7BQ82 | G S L |
| UniRef90-I3P6K6 | G S L D |
| UniRef90-K4MYU5 |  |
| UniRef90-P27222 | M S 1 |
| UniRef90-R9RX83 | GS F N |
| UniRef90-Q8BDD6 | GS F D |
| UniRef90-F2YGH9 | VT T D |
| UniRef90_Q647H8 | G S F |
| UniRef90-Q705F3 | G S LiE |
| UniRef90-K7QH99 |  |
| UniRef90_E7BRR0 | G S L ${ }^{\text {D }}$ |
| UniRef90_G1CR71 | GS FD |
| UniRef90-P26547 | M T L |
| UniRef90-F2VIR4 |  |
| UniRef90-E1CGC0 |  |
| UniRef90-B2KKW9 | L S ${ }_{\text {L }}$ |
| UniRef90_A6XA94 | 1 S Q |
| UniRef90-P22156 | M T |
| UniRef90-H9LC95 |  |
| UniRef90_P36793 | LT L |
| UniRef90-U6EJK2 |  |
| UniRef90-P06790 | M T M |
| UniRef90_L7X2P0 | G Q L D |
| UniRef90_K7QPX5 | G S L D |
| UniRef90-Q07850 |  |
| UniRef90-E7BQA3 | $\square \mathrm{N}$ |
| UniRef90_O37387 |  |
| UniRef90-D5FL28 | 115 |
| UniRef90-W8EC70 | L NMD |
| UniRef90-13P6M7 | G N L E |
| UniRef90_L7XDX8 |  |
| UniRef90-B7TQP0 |  |
| UniRef90-16MRF1 | $\square \mathrm{N}$ |
| UniRef90-H6UYP8 | A S LP |
| UniRef90-S6G386 | GS LD |
| UniRef90-J7JMM2 | GMFD |
| UniRef90-D7P162 |  |
| UniRef90-H2BQC4 | G S LD |
| UniRef90_Q80958 | M S CP |
| UniRef90-K4MKU6 | G QLIN |
| UniRef90-B4XYE9 |  |
| UniRef90_P36794 | MT】 |
| UniRef90-S4TGZ5 | L N |
| UniRef90-Q80923 |  |
| UniRef90-Q80944 | $\square \mathrm{N}$ |
| UniRef90-Q11124 | G S LD |
| UniRef90-F8QPQ3 | M S M |
| UniRef90_B4XYE2 | A ELIP F |
| UniRef90-D6N1C1 |  |
| UniRef90-Q705H7 | G A L |
| UniRef90-K4MN79 | GS L E |
| UniRef90-U6BN97 | G SID |
| UniRef90-A4GV60 | M T M |
| UniRef90-LOCKE1 |  |
| UniRef90-I3P6N4 | G S LE |
| UniRef90-H2BQ90 | G T L D |
| UniRef90-V5W3P8 | G N L N |
| UniRef90-H2BQD1 | G S L D |
| UniRef90-C7B7D5 | G S L D |
| UniRef90-H2BQA3 |  |
| UniRef90_I3P6M0 | G Q\|L |D |



UniRef90_R9QBR5
UniRef9O-H2BQB7 UniRef90 P36790 UniRef90-X2GB89
UniRef90-P36797 UniRef90_A8R8N3 UniRef90-C0ITA8 UniRe90_Q8JTG5 UniRef90-P27552 UniRef90-H6UYQ5 UniRet90 W9AAH3 UniRefo- K 9 M 929 UniRef90-Q07849
UniRef90 Q5UUY2 UniRef90-G1C916 UniRef90_K4MYX6 UniRef90 ${ }^{-}$W8EH55 UniRef90 AOEPK6 UniRef90-U6BQT
UniRef90 W5S315 UniRef90 ${ }^{-}$O85062 UniRef90-F8SIL9 UniRef9-Q1 UniRef90-K4MNF3 UniRef90-C1ID94 UniRef90-H2BQBO UniRef90-K9M8S8 UniRef90_Q30BJO UniRef90_Q82008
UniRef90 L7X5Q3 Unele UniRef90-C8AY92 UniRef90 Q06RH2 UniRef90_-F2YGH2 UniRef90 O8UZ17 UniRef90-F8SIM6 UniRef90-Q8JJG6 UniRef90-B6RUP4 UniRef90 Q8JNA4

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 PI I IVTGPANSLKCWRYRKQNSNAFPFLAVSTVFTWVGG TPVVHLKGEPNRLKCLRYRC QKHKHLFVNISSTYHWT PVLILTGPANVLKCWRYRKKNQNEFSFLDISTDFTWVGS APVVHIK GEANRLKCLRYRF QKHKQLFVTVSSTYHWTNV PLI I K GPANTLKCWRNRMKKNSSSNLV CSSVWRWIDS

LLI S GGGNQVKCLRWRLKRHHKRDYRNCSTTWTWVSN

 KGPVNSLRCLRYKWKNKYSGDDMYDGTTFTWTES
VLIAGGANQVKCFRHKLKVQHKGLYRTCSTTWSWVGD
LLIAGGANQVKCLRHKFKVFHKNLYKKCSTTWSWVGD PVILITGPANSLKCWRNRVRRRPVRLFDRDSTCFSWVTE
PLIVQGGSNALKCWRRRFMLKFGHLYGDSTSVFTWVRN PMILLKGTANSLKCWRYRKVNSNCCNFGFMSTVWNWVGD
PVTVFRGNVNQLKCWRGR RDKYHMYFKDDST TWKWSGS LLVCKGTANQVKCFRHKLKTVYPGCFDFCTTTWNWVDP P LVGRGLPNTLKCWRYRKFQNANKCFWKDSTVFNWVGD IVVTGPGNSLKCWRWRLKKKSRYY DRMSTVWSWAGE PVVLIRGTPNGVKCLRYRLRTQNQHLYDSVTSTFFWVNK PIVLVKGPTNALKCWRNRLRRRFHKPFQNVSTAFSWVND PILILKGSSNTLKCFRNRUKDYNW FYKSSNVWRWLGH PII IVKGGANNLKCWRYR HKNCSLVGDISTVFRWTG PVI CLKGGHNQLKCLRYRLKSKHSSLFDCISTTWSWVDT PIISVKGPTNSLKCWRNRLRRRTYKPYSRVSTAFQWVED PM MLKGHANSLKCWRYRKLTSNSCGF LYMSTVWN WVGD APVI IA GPPNALKCQRYRLQNQHYRHFAQVTTTYHWDS LLILKGSANNLKCWRN KHKHKNWFSNSSNVFRWLGH LLILKGPSNNLKCWRNKVKDQNW FRDSSNVWRWLGP VLLRGPANKLKCWRYRWKPKLGSP GFSTVFKWVTQ PII II RGLANNLKCWRYRYAKRNVKNFIVMSSVFNWITN PLI CIISGTANSLKCWRYRKSNQCPQRFLVMSTVFQWVGD PVLI GKGRPNCLKCWRNRFGVSHKGLFLDCSSTFSWT Q APIVHLKGDKNSLKCFRYRLHKGYSHLFKNVTTT WHW PII II QGCANTLKCFRNRVNHKHQSLYRAATTVFRWVVS TPVVHLKGEPNRLKCCRYRF QKYKTLFVDVTSTYHWT OVIIKGPSNNLKCWRNRDPSYNDKY ACSNVWRWLGE P I L LVKGPPNSLKCWRNRVRRRFPRPFSQTSTVFTWVDE PVI LLKGPTNTLKCWRNRLRRRHFRPFIKISTAFSWVED LLISGNANQVKCHRYRLRKYRRKRYEHITTTWWTVSE
PVILVTGSCNQVKCWRपRCRRHHRHRYHRVTSTWY TGD LLISGGPNQVKCLIRYRLRRHHRKAYRSCSTTWSWIGD PIILVKGPTNPLKCWRNRLRRRDHRPFTKПSTAFSRVED VCYTGQTGQLKTVRYREQAG PYTFERVSSAWHWLNG LGFEGKTSQLKY LVFEGSTAQLKHCRRVEAGSLKYSRVTSTWHWI

[^0]


TSTCRLGSGRMLI KFADSEQ
D GVEVGDRSNVLVAFADTHQKEVFLKTVTLPKGCSYTSGF SS ENHSRMLIAFTSTDQRDYFVKHHFFPRQCTYT GK GHTQRRSAAQ!VLRFVDTAQRETFLNTGALSDRVHYVLGT GCT ETT
E E TH
D A D -D S RML DDGGRTLVS RNGCSHKSARVVVAFRSNAEREAFVKHTQLPRNATYTYG TGGGRGVDGVI LIVFETARQRTEFLRKVSMPRGMSAHAC TNTTNSKCGVITTLMFTTVLQQQHFLQHVKDPQTIVVTSGY DAEDKKENGRMLI AFCNSMQRD

## STDNKNYS\|ITI IYKDETQRNSFLSHVK\P

 QGTDRCGSGRFLIAFTSKEHRDEFYVAARPPPNI RDSGGVTN MLVAFLDSQQRDVFLKTVPIPKGSVYYKG




KKVQKPCKMIVVFSNNAERQTFLHLFRV
SGKKVLKPSKMIVVFNNEKERSTFLNLFRVEDGDTVRDC DKN RSKIIVLFDSKEDRDNFAK

[^1]

| UniRef90_R9QBR5 | G N/L ${ }^{\text {E }}$ |
| :---: | :---: |
| UniRef90-H2BQB7 | GQLD |
| UniRef90-P36790 | M T |
| UniRef90-X2GB89 | G K L D |
| UniRef90-P36797 |  |
| UniRef90-A8R8N3 |  |
| UniRef90-F2VIQ8 |  |
| UniRef90-COITA8 |  |
| UniRef90-Q8JTG5 | LT $\square$ |
| UniRef90-I3P6L3 |  |
| UniRef90-P27552 |  |
| UniRef90-F2VIQ2 | A T L P F |
| UniRef90-H6UYQ5 | A $\square$ L P F |
| UniRef90-H6UYP1 |  |
| UniRef90-W9AAH3 | GNLD |
| UniRef90-H2BQ97 | GNL N |
| UniRef90_K9M929 |  |
| UniRef90_Q07849 | L N |
| UniRef90-Q5UUY2 |  |
| UniRef90-G1C916 |  |
| UniRef90-T2A4C4 |  |
| UniRef90-K4MYX6 | $\square \mathrm{N}$ |
| UniRef90-U6ELC3 |  |
| UniRef90-W8EH55 | G R L D |
| UniRef90-A0EPK6 | G N L D |
| UniRef90-U6BQT1 | G S L D |
| UniRef90_W5S315 | G S L Q |
| UniRef90-Q85062 |  |
| UniRef90-F8SIL9 |  |
| UniRef90-Q705D6 | G S $\square$ N |
| UniRef90-Q1XA73 |  |
| UniRef90-Q0QIH8 | M P |
| UniRef90-K4MNF3 | G S LD |
| UniRef90-C1ID94 | G SLD |
| UniRef90-E7BRR7 | G S L D |
| UniRef90-H2BQB0 |  |
| UniRef90-V5W3Y3 |  |
| UniRef90-K9M8S8 |  |
| UniRef90-Q30BJ0 |  |
| UniRef90_Q82008 | M S L |
| UniRef90-L7X5Q3 |  |
| UniRef90-P36798 |  |
| UniRef90_I6MRG5 | G NLE |
| UniRef90_C8AY92 | G S L D |
| UniRef90-Q5IRF3 |  |
| UniRef90-Q06RH2 |  |
| UniRef90-F2YGH2 | VM C D F |
| UniRef90-W5ZT83 | L S |
| UniRef90_Q8UZ17 | V N L P F |
| UniRef90-F8SIM6 |  |
| UniRef90-X2JL96 | LT L C |
| UniRef90-Q8JJGG | LS |
| UniRef90-C6ZDA2 |  |
| UniRef90-B6RUP4 |  |
| UniRef90-B6RUQ1 |  |
| UniRef90_Q8JNA4 |  |
| lupas_21 |  |
| lupas_14 |  |
| lupas_28 |  |
| jnet | $\bigcirc$ |
| conf | 01899 |
| sol25 | B B B |
| sol5 | B |
| sol0 |  |
| jhmm | - |
| jpssm |  |


[^0]:    lupas 21
    lupas_14
    lupas_28
    jnet
    cont
    col25
    sol5
    solo
    jhmm
    jpssm

[^1]:    lupas 21
    lupas_14
    lupas_28
    jnet
    cont
    sol25
    sol5
    sol0
    jhmm
    ssm

